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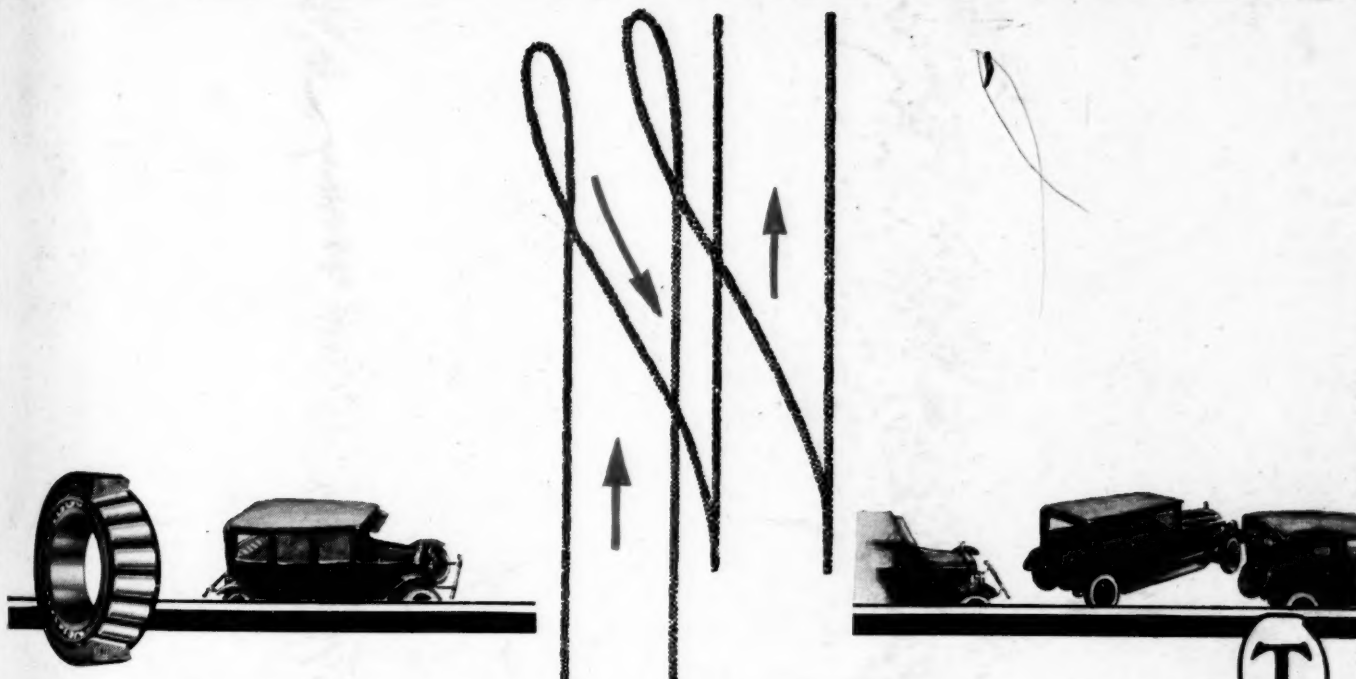
AUTOMOTIVE INDUSTRIES

The AUTOMOBILE

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NEW YORK—THURSDAY, SEPTEMBER 20, 1923

No. 12

Problems of Major Import to the Industry Taken Up at M. A. M. A. Convention

BOSTON, Sept. 19—Subjects of major import for all branches of the automotive industry will be discussed at the annual fall convention of the Motor and Accessory Manufacturers' Association which opened here today with a large and representative attendance. The central theme of the meeting, "Widening the Market for Automotive Products," is of vital interest to manufacturer, jobber and retailer. It will be considered in both its foreign and domestic aspects.

Not only will the actual merchandising questions involved be discussed by experts, but collateral problems, such as traffic congestion, safety and highways, will be stressed by men who have studied them for years. This exposition should be highly valuable, because there is a lamentable lack of interest in these questions which must be solved before the market for automotive products can attain its full stature.

The address by Roy D. Chapin, chairman of the highways committee of the National Automobile Chamber of Commerce, on "Building More and Better Roads," delivered at the opening session this afternoon, was of especial importance because it was the first public announcement that agreement had been reached on the fundamentals of road building by the American Association of State Highway Officials, the Investment Bankers' Association, the Bureau of Public Roads and the N. A. C. C. This agreement has followed long and delicate negotiations.

Development of jobber distribution, a subject new on programs of the M. A. M. A., will be taken up at the session tonight. The advantages of selling both the jobber and the dealer will be discussed by E. P. Chalfont, and promotion of sales through jobbers by Ray W. Sherman, business counsel of the Class Journal Co.

Other sessions will be devoted to credits and finances, railroad transportation, export markets and advertising. There will be no group meetings, because the program has been so arranged that all of it will be of interest and value to everyone attending the convention.

The story of this convention always is of much interest to the industry and AUTOMOTIVE INDUSTRIES will cover it in detail. In the pages which follow are Gerit Fort's address, messages from leaders of the industry read to the convention, papers by S. W. Dorman, general manager of the Overseas Motor Service Corp., and John F. Kelly, Jr., export manager of the Electric Storage Battery Co., on important phases of the export trade, and a suggestion by H. W. Slauson, engineering service manager of the Kelly-Springfield Tire Co. for improving traffic conditions, together with the views of municipal authorities on this subject.

The remainder of the story, which will be told in next week's issue, will be liberally illustrated. Photographs will be published of prominent automotive executives attending the meeting and the chief developments of the various sessions will be summarized.

M. A. M. A. CONVENTION

Third Dimension Needed for Traffic Relief

Office buildings should provide parking space for tenants, says H. W. Slauson. Thinks trolleys should be confined to long hauls.

ARCHITECTS provide for vertical traffic when they design office buildings, but neglect parking space necessary to accommodate vehicles. The parking problem in cities cannot be solved until some such arrangements are made, according to H. W. Slauson, Engineering Service Manager, Kelly-Springfield Tire Co., who attempted to answer the question "Are We Properly Meeting the Need for Improved Traffic Conditions?" After pointing out that car designers have done much to reduce traffic difficulties by making engines more flexible and brakes more efficient, Slauson took up the question of street congestion. He said in part:

I believe there is one practical suggestion which should be adopted by every city in which street congestion is serious. This relates to the traffic confusion which is so greatly aggravated by the trolley, which not only controls the speed of travel on its own track but which may also bring several parallel lines of vehicles to a complete halt every time it stops to take on or discharge passengers.

Most of us no longer agree with the radicals that the trolley should be legislated out of existence. But, whereas the trolley should have the privilege of controlling only a single line of traffic, in reality, as has already been pointed out, it controls every line of traffic between its rails and the curb and will continue to do so as long as every street corner becomes a station for the arrival and departure of passengers.

To lay the rails at the side of the street close to the curb would greatly lessen the congestion of moving traffic but is impractical, because no motor cars could be parked at the curb. The elimination of the rails by the substitution of rubber-tired trolley buses with flexible connections with the overhead power-wires has been tried successfully. But, in many instances, these rails must be used for long distance and suburban traffic, and at any rate, the tracks, conduits and third rails represent an investment which many trolley companies will not willingly throw away. Therefore, inasmuch as it is the frequent stops of the trolley which add so greatly to traffic congestion, let us reduce the number of these stops as much as possible.

Trolleys Should Not Hinder Traffic

Trolley transportation should prove a supplement to, rather than a deterrent of, street traffic.

Why could not existing trolley companies use their rail equipment for long distance hauling with no intermediate stops to take on or discharge passengers?

The short haul traffic could be handled by means of supplementary motor buses owned by the trolley company and operated either by gasoline engines, storage batteries or flexible connections with the overhead trolley wires. Such buses could stop at the street corners as easily as a

private automobile and could carry all of the local traffic with arrangements for transfers at points one or two miles apart at which the rail-bound trolley cars could stop.

The rail-bound trolley with its infrequent stops, could then travel as fast as its own line of traffic would permit. Under this arrangement passengers could be carried more quickly, either by the short haul bus or the express trolley, than is possible under present conditions of traffic.

It may be argued that the increased number of buses would so add to highway congestion as to neutralize their benefit, but they could replace almost an equal number of trolley cars now used for the short haul traffic, and because of their ability to pull directly up to the curb to receive and discharge short haul passengers, and to weave in and out of traffic without restriction to rail, I am very positive that the carrying capacity of our streets could be materially increased.

But traffic cannot keep moving continuously; cars are on the street because they have some definite destination in view and this brings us to the most serious of our municipal problems—stationary traffic. If we adhered to the letter of the non-parking restrictions, the ten minute parking limit signs and the admonitions of some of our city court justices, we could not even stop our car for lunch, but would eat "a la car," as it were.

Methods of Relieving Congestion

It is not the province of this discussion to describe the various means employed in many of our cities by which parking space may be secured. These attempts to improve conditions can be but temporary make-shifts of a situation which is inherently and basically wrong.

I am not a close student of traffic conditions and I have no statistics other than those based on daily observation, but, I ask you, will it not be absolutely impossible to accommodate on two dimension roadways, occupants of cities who are continually living in three dimensions, for our cities are no longer planes, they are cubes; the third dimension is used by every architect, building contractor and real estate man who wants to add to the value of his property through its ability to accommodate more human beings.

Just think what it means, for example, when a twenty-story office building or apartment house is erected on a certain site. Such a building may well occupy an entire block and may easily replace thirty or forty houses each of which accommodates one or two families. If each family owned a car and if each entertained a guest simultaneously who also came in a car, there would still be room at the curb for the maximum number of seventy-five or a hundred cars involved.

Now, when these houses are demolished and we add the third dimension to this block in the form of the twenty-story apartment house, we may find two or three

hundred families occupying the same ground space which formerly accommodated thirty or forty families, but under modern conditions of construction and planning the car parking space has not been increased and there is still no more room at the curb for the cars of tenants and friends than was the case when three-story single dwellings occupied this block.

What is one of the first items that the architect considers when designing his building? He calculates the total area of floor space, estimates the number of persons who will be accommodated on each floor and then allots space for an adequate number of elevator shafts to take care of the vertical traffic. No well-designed and well-managed building will permit of undue elevator congestion even during rush hours, and in consequence far better provisions are made for this third dimension traffic than are available for the tenant of that building whenever he desires to travel in a horizontal direction.

Vertical Traffic Considered

Such a tenant, after having been whisked rapidly down to the ground floor, may find that his wife, his chauffeur, or whoever else may be driving his car down for him, will have been unable to find any parking space near the building and will in consequence have been forced to drive around the block continuously. This "merry-go-round" parking is becoming the only solution of the problem in certain sections of our cities.

Here, again, we are confronted with the absolute necessity of adding the third dimension to our parking spaces as well as to our highways. We have added the third dimension to our rail-controlled city traffic in the form of elevated structures and subways, but we have as yet found no satisfactory solution, other than vague plans, to the problem of securing the third dimension for motor-driven traffic, and this traffic relief is vitally needed and must therefore be susceptible of immediate application to existing conditions. It is all very well to plan for the ideal city of one hundred years from now, but the problem is not one for our children or future generations to solve, it is one for us here and now.

I firmly believe that the problem of the stationary car is far more serious than that of the moving vehicle. The seriousness of the situation lies not so much in present conditions as in the fact that we are doing nothing to prevent a very serious aggravation of these conditions within the next two or three years.

Possibly, a remedy must be brought about by legislation. It is true that there are already too many laws, but legislation which will insure adequate parking space for the cars of the future is far better than legislation which will prevent the efficient and effective use of the cars already in operation. The automobile is too effective a tool to have its efficiency curtailed in the slightest by half-baked ideas such as have already been proposed, and which have as their object a reduction in the number of cars which shall use the streets and a restriction of the areas in which they may be kept. You cannot legislate crowds and lawful pedestrians off of the sidewalks and it would be equally ludicrous or impossible to prevent highway congestion by saying that cars or trucks belonging to certain individuals shall not be used except, possibly, under given conditions, such as certain hours of the day or certain days of the week.

City Planning Needed

We must get at the fundamentals and so arrange and design our cities that, as the city grows in population, its ability to accommodate stationary and moving traffic will grow in the necessary proportion. Therefore, the blame for traffic congestion in reality lies with those

who are responsible for population congestion and to them we should look for the remedy. But please bear in mind that the remedy which I have to offer does not serve to eliminate present conditions, but merely to look toward the future and prevent a continuation of this unequal ratio of population increase to available parking space.

My proposal is merely that, as every modern building is required to devote a certain proportion of its area to elevator and fire escape requirements, so in the large buildings of the future we should require that they furnish adequate parking space within themselves. This will employ the third dimension—which is the cause of traffic congestion—as a means of relieving that very congestion. This is not so difficult as it might sound, for one sub-cellar or lower floor of the building which may be connected with the street by ramps which could be made to furnish automobile storage space equal to at least 5 per cent of the available rental area of a twenty-story building. This would, of course, reduce the rental return of the building by 5 per cent, but if department stores have found it advantageous to rent or construct free garages for the benefit of their patrons, the owner of an office building or apartment house would find it equally "good business."

But we are not considering good business from the aspect of the real estate man. Zoning laws of our cities which have regulated the height of our buildings in order to preserve the architectural beauty and give adequate light to the streets below, have also served to reduce the total gross receipts which may be obtained from a building occupying a certain plot of ground. On the other hand, the benefit to the tenants of the entire neighborhood has been such that net revenues have not been decreased.

Parking Space in Every Building

We carry out the same principal of third dimension parking in our suburban homes where many garages are built of fireproof construction directly in the house, as a part of the cellar. Apply this same idea to an office building, making the storage space thus formed available upon payment of a small fee to every tenant who has occasion to leave his car in this vicinity for more than, say, thirty minutes, and you will find an automatic solution of the parking congestion problem which *will keep pace with the growth of the city*. The curb space will then be left free for the cars of clients, customers and others having occasion to leave their vehicles for only a short time.

The intensive prosecution of such a plan, however, requires not only the continued agitation of the automotive industry, but what is more important, complete co-operation with building architects, zoning authorities, city engineers and other municipal officials with power to recommend and enforce ordinances of this kind.

It has been in our failure as an industry to realize the necessity for this close cooperation, that we have not adequately met the need for improved traffic conditions. Our various manufacturing and dealer organizations should be so strong as to be represented on every city planning commission without question. The automotive representative should be the first one chosen for such a position, for the traffic and parking problem is more his than that of any other merchant. If customers cannot come to department stores by private automobile they will come by bus, trolley, subway or taxi-cab. But the automotive merchant must furnish his customers with space in which to operate and store his car.

We have been only about 50 per cent right in our attempts to solve this traffic problem.

(Continued on page 568)

Messages from Leaders Bring Out So

A. R. ERSKINE—In the volume of capital investment, output, employment, and sales, the automobile industry at present ranks second, if not first, in our industrial life.

More people are probably dependent upon it for a living than any other of our industries. The automobile industry is one of the largest consumers of raw materials and semi-manufactured products, and one of the heaviest users of the railroads.

Reflecting upon these facts, it seems logical to conclude that nothing could hurt the automobile business except widespread national depression, which is entirely unlikely.

I expect the United States to be highly prosperous for months and perhaps years to come, and believe the automobile industry will continue to flourish and prosper as it has done in the past.

There will never be any great problems facing the automobile industry different from those which are common to all business. The automobile is so interwoven into our national life and necessities that the production and sale of motor cars is a fixed and stable business that nothing can undermine.

ALVAN MACAULEY—I am glad to say I am an optimist. I see no reason to fear the future, but on the other hand, I am looking forward most hopefully to the balance of this year and all of next, as far as we can see into it. I am almost willing to risk a prediction that it will be the biggest year the industry has ever enjoyed.

I am coming to believe that the greatest problem facing the automotive industry is not the used car problem from a saturation point, but the inadequacy of the roads and highways. The streets of our cities were laid out to accommodate a few hundred thousand horses and wagons. The street cars came along and congested the streets and on top of that we have turned loose 12,000,000 plus of cars and trucks. The great stream of automotive traffic through streets and highways totally inadequate to traffic is, I believe, the greatest difficulty we face.

The numerous accidents and, too often, the loss of life through truck and automobile accidents are not primarily the fault of the automobile but of the inadequacy of the road facilities. The congestion with its resultant accidents and delays must be cured. It will require sound planning and a great outlay, but it must

be accomplished. The sooner we all recognize that the problem, however great, must be solved, the sooner we will be on our way to a cure.

The automotive industry must take the lead in this great work, which will extend to every city and highway in the country. The work can be done cheaper this year than next and cheaper next year than any year following. Each passing year finds more and more buildings along the streets that will have to be widened and straightened. I would hazard the guess that each year that this work is delayed or uncompleted will add \$50,000,000 to the cost throughout the United States of accomplishing what will ultimately have to be done.

CHARLES M. SCHWAB—I am always an optimist, but I am particularly an optimist about the automotive industry. In my forty-three years' business experience I have never seen any industry grow with the permanence and rapidity of your own.

While in steel many years ago we thought we had reached the zenith I have lived to see it grow year after year to greater proportions and now after my long experience I am of the opinion that it will continue to grow and so with your own industry. The automobile is a necessity to economics and civilization. Its basis is fundamentally sound, and in my opinion will expand.

You may have years of dullness and depression, but on the average the tendency will always be onward and upward.

EDWARD S. JORDAN—The generally satisfactory condition of the secondary market for motor cars during the past twelve months has temporarily diverted the attention of manufacturers and dealers from the main factor which will determine dealers' profits and factory outputs during the coming year and in succeeding years.

The introduction of new models by some manufacturers will allow them to continue at least temporarily the volume of production, which is their ambition, but the reduction in valuation of the second-hand cars of those makes will have a tendency to reduce the profits of dealers, who have to finance and handle these trades.

While it may appear to some that I am too insistent in the presentation of the single idea,

Some of Industry's Big Problems

I still maintain that in the last analysis the ultimate profit to the dealer and to the factory will depend not upon the number of automobiles that are delivered by the dealer or produced by the factory, but the profits that the dealer makes in the sale of any make of car in the second-hand market.

In other words, it does not impress me when one company delivers 1000 or 10,000 or 50,000 cars more than another one.

It is only necessary for us to realize that while the factory may temporarily make money through the delivery of a large number of cars by taking unreasonable trades, the profit to the dealer becomes less and less with the resulting reaction detrimental to the dealer and ultimately curtailing the factory output.

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A. P. SLOAN, JR.—The balance of the year promises well for us and we see little to conflict with additional progress for some months to come.

There are many problems confronting the industry, not the least of which are the questions of proper service to the public and that of the used car.

Undoubtedly both of these problems may be properly solved, if not definitely disposed of, by a complete understanding of the benefits which may be obtained in the long run by dealers meeting these questions squarely and definitely.

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CHARLES CLIFTON—The maker of parts and accessories can safely assume that that branch of the industry is in a fundamentally sound and fortunate position. The production of 1923, totaling over 2,700,000 for the first eight months, or more than the output of 1922, means that the registration by the end of the year will doubtless be considerably over 14,000,000.

This vast volume of vehicles on the road means a stabilized condition both for the parts and completed-vehicle business. For you who are making parts and accessories it means a larger market among the users. For the vehicle manufacturers it means an increasing basic demand in replacements.

In spite of the effort of the industry, of individual manufacturers, of the newspapers, and of the public authorities to reduce motor vehicle accidents, this still remains the outstand-

ing problem of the industry. It is natural that the rapid growth of registration should create need for more careful operation of traffic.

It seems to me that the best remedy for the situation is to be found in the personal attention of each company, its executives and its employees in the community in which they live.

The newspapers have been most public spirited in fostering the safety campaigns and giving prominence in their columns to every effort to remedy the situation, but this must be followed up by personal effort and active work in each community.

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W. N. THOMPSON—It is my firm belief that those of us in the automotive industry can look forward to a profitable future and I am inclined to believe as we apply more intensive business methods all along the line, so will our cause be more rapidly advanced.

The sooner the buying public settles down to buy transportation and the sooner the manufacturers confine themselves to building it, the sounder the foundation under the automotive industry will become.

The fundamentals in automotive engineering must be given primary consideration rather than the superficialities which contribute but little to the durability and efficiency of automobiles, and the public in buying must recognize that value in new cars can only be assured to the utmost when consideration of the wornout automobile and its possible trade-in value becomes secondary in the buyer's mind to the inherent worth of the new car which he is thinking of buying.

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ALEX. LEGGE—I cannot see any prospects for radical change in the trade in your line for the immediate future.

The greatest problem facing the industry is perhaps the fact that a considerable percentage of your customers—that is, the agricultural classes—are undoubtedly unable at the present time to maintain the rate of purchases they have been making and pay for them from current earnings. In other words, it is my judgment that they are drawing on reserves and credit for the future to a considerable extent.

The solution is an economic question that is occupying a great deal of attention of the American business men at present, but in my judgment the solution is not in sight.

Preliminary to the discussion which followed Slauson's papers, letters were read from several traffic experts in which they voiced practical suggestions for the relief of congestion. One of the most significant was from Barron Collier, special deputy police commissioner of New York in charge of the promotion of highway safety, in which he asserted that regulation of pedestrians at crossings is just as important as the regulation of vehicles. He also advocated exclusion of heavy trucks from the streets except between the hours of midnight and 6 a. m. He said:

"The rapidly increasing number of motor vehicles in large cities makes it necessary that steps be taken to develop methods for controlling both pedestrians and vehicles. The problem must be worked out in such a way as to not only safeguard pedestrians but permit the uninterrupted flow of traffic and the avoidance of congestion."

"Pedestrians, therefore, should be so regulated that they will cross streets only at designated crossings. With these crossings protected on main thoroughfares, traffic should be permitted to move under such careful regulation at a speed that will give reasonable safety to the public and at the same time keep the traffic flowing freely."

Regulations for Heavy Trucks

"Heavy cargo carrying trucks which impede the flow of traffic contribute largely to accidents. If, in large communities, such vehicles were operated only between midnight and 6 a. m. they would be able to do their work more efficiently and expeditiously and without impeding the movement of passenger carrying vehicles. Such a plan would, if adopted, immediately prevent a large proportion of street casualties."

"This radical change in motor truck operation need not be obnoxious to the general public from a standpoint of unusual noise at night. City regulations should prohibit the sounding of sirens or horns of these vehicles during the hours prescribed. Inasmuch as very few pedestrians are on the streets during these hours, the sounding of horns would not be necessary for their safety."

"More playgrounds are essential to keep the children safe in large communities. Playgrounds should be made attractive and so regulated and cared for that parents will not object to sending their children to these spaces."

Five specific suggestions were recommended by Harold S. Buttenheim, editor of *The American City Magazine*:

- "1. Effective zoning ordinance.
- "2. Widening narrow streets.
- "3. Stricter time limits on parking of automobiles.
- "4. Standardization of mechanical devices for traffic regulation.
- "5 Efficient organization of off-rail movement of freight."

Anti-Parking Ordinance

Morgan A. Collins, superintendent of police of Chicago, wrote:

"We have an anti-parking ordinance effective from 7 a. m. to 10 a. m. and from 4 p. m. to 7 p. m. in the business section, which prohibits automobiles parking anywhere on the public streets. Other hours of the day, between 7 a. m. and 7 p. m., they are allowed thirty minutes."

"Some streets are paved better than others and, of course, the well-paved streets always draw the travel. If all streets were put in perfect condition then traffic would be evenly distributed."

"I do not believe that it is the duty of the city to furnish parking space for anyone, especially during the business hours of the day. Automobiles are becoming no numerous that if you attempted to furnish this service

our streets would be completely jammed and our business strangled."

"Any open space that can be used for the parking of cars, of course, is beneficial, and is a solution of difficulty for the car owner. Many owners of cars use them to travel to and from their places of business and feel that they have a right to leave them parked somewhere on the streets, interfering with travel all day long, until they are ready to return home at night."

"Persons of this class should use the street cars, the elevated lines or other means of public utility transportation, and not unnecessarily congest conditions in the downtown sections by requiring space to park their cars at their business."

"By refusing space on the streets for the parking of cars you allow business to continue uninterruptedly and you benefit the many and discommode very few. You will thus have more space to drive cars, and the owner of a car will find it incumbent upon him to find a place to park his car whether it be in a garage or a public parking space."

Stanley W. Ray, Commissioner of Public Safety, New Orleans, advocated "simpler and more natural" regulations, rather than "stricter" regulations, and suggested the construction of centrally located garages by department stores and office buildings as the ultimate solution of the parking problem. He also expressed the opinion that one-way streets will have to be adopted universally in all cities for thoroughfares less than sixty feet in width.

Building Height Restrictions

Restriction of the height of buildings was recommended by Lawson Purdy of New York, noted authority on city planning, as the most important remedy for the present situation. He said:

"If no building is higher than the width of the space on which it fronts, and has an open space in the rear on its own lot of one-half its height, we shall come somewhere near eliminating congestion. The rule in Paris as to height is very nearly what I suggest, although Paris has not the open space to the rear that I recommend. In spite of this, Paris is congested."

Colonel Charles Clifton of the National Automobile Chamber of Commerce has suggested a program embracing the following points:

1. More playgrounds.
2. Stricter regulations and more scientific study of safety provisions.
3. New boulevards.
4. Detours for through traffic.
5. Parking spaces in basements of office buildings.
6. Use of open lots for parking.

From Mayor J. Hampton Moore of Philadelphia came the following comment:

"In cities like Boston and Philadelphia, where motor traffic is piled up enormously, one solution would be to widen streets, but that is too expensive a proposition for immediate acceptance on a comprehensive scale. The automobiles have increased too rapidly for the older cities, where real estate values make the acquisition of properties for street widening almost prohibitive. The experience of the older cities, however, should serve as a lesson and a warning to newer cities awaiting development."

"Distribution of population is also important, but that involves business distribution, which in older cities is likewise a difficult problem. Regulation of parking, the acquisition of garages and the setting up of parking spaces would all aid in the solution of this new and important problem."

Profits in Exports for Small Manufacturer

Policy regarding exclusive territories must be governed by character of product. Foreign dealer's wishes should be met.

THE small automotive manufacturer can make profits from export trade if he enters the field with care, concentrates on a few countries to begin with, and pushes his foreign business consistently over a period of years. This was the chief idea brought out by S. W. Dorman, general manager, Overseas Service Export Co., in his talk on "How the Small Manufacturer Can Get Foreign Business."

Dorman believes that a man from the domestic sales department, familiar with the company's policies, is fully capable of taking over the task of handling export business. He points out the necessity of working exclusively either through dealers or jobbers in foreign lands, and advises companies entering the field for the first time to concentrate on South America, Cuba and Mexico in the beginning. Dorman said in part:

The question of how the small manufacturers can get export trade is one that depends a great deal upon the products to be exported. If there is any service to be given on the article, I believe that small territorial exclusive rights should be granted, while if it is a strict sales proposition, all territories should be kept open.

The first proposition for a manufacturer to consider is who in his organization will handle export sales. My advice has always been to take someone in the sales department who is familiar with the product and the method of distribution and let him handle export sales exclusively, but it must be remembered that in doing this the entire organization must back him up. Export orders must receive every preference at the factory in being made up, shipped, invoiced, etc., and if the export manager does not receive this cooperation he will eventually fall down on his work.

It is imperative in selling the foreign trade that you first decide definitely whether you are going to sell the wholesaler in the foreign country or the dealer. The associations in certain foreign countries are much stronger than in this country, and if you attempt to sell both the dealer and the wholesaler you are going to run against stiff competition from the associations.

Distribution Methods

When we first entered a certain market we called on both associations, and it was made very plain to us that we could not sell them both. We selected the jobbers' association to sell, and they immediately notified all of their jobbers that we were in town and just what we had to offer, and we have always received every possible cooperation from them.

It is next imperative that you stipulate at your factory just what percentage of your output you will sell for export, viz., 10 per cent, 20 per cent or 30 per cent. This gives your export manager a mark to shoot at and he can govern his sales accordingly.

Next comes the question of just what markets to open first. It has always been my recommendation to the various factories to start with South America, Cuba, Panama and Mexico, first, as they are close at hand and quick results can be obtained. If South America is decided upon, I would then put the question before the Automotive Division of the Department of Foreign and Domestic Com-

merce, giving them full information regarding your product and the method of sales in the domestic market, and ask them for a list of the wholesalers in those countries which are interested in your line of goods, together with a full report as regards their financial standing.

I would then write each of these companies an individual letter (not a form letter) laying out in detail the merits of the product and inclose any literature possible on the subject. It is important in this connection, to see that your letter is written in the language of the country, as for instance, Spanish in the Argentine, Portuguese in Brazil, etc.

Full details should be given in the first letter as to your prices and discount, f.o.b. point, packing, boxing charge, if any, and terms of payment.

The next subject is terms of payment. It has always been our policy in dealing with the foreign trade to receive cash in New York on the first order. On the second order 25 per cent cash, balance sight draft against documents, and on all following orders, straight sight draft against documents.

Export Price Should Be Low

On the question of price, it is imperative that your export price be equal to, or if possible, better than your domestic price, and that you quote in addition to this f.o.b. seaboard and include boxing without charge. You must consider that it is going to cost you more to secure your foreign business than it does to secure your domestic business, and you must also consider in addition to the cost of your material laid down at seaboard, your customer must pay ocean freight, war risk and marine insurance, as well as duty, plus a handling charge, before he gets it into his stock.

You must also figure that your customer has to wait from three to six months in practically every case from the date of his order until the arrival of the material.

On the question of boxing, some manufacturers believe that domestic packing will go for export, but I can truthfully say that 90 per cent of the accessories manufactured today would be ruined by salt air or salt water if shipped for export in domestic packing. We insist that all of our factories box our material in new lumber $\frac{3}{4}$ in. to $\frac{7}{8}$ in. thick strapped with iron strapping and that the weights in both pounds and kilos be shown very clearly on the outside of the case.

It is of great importance that you have someone weighing your cases who will get an accurate weight and can figure out the actual weight in kilos, as particularly in the South American territory a very heavy fine is imposed by the customs if the weights are figured incorrectly.

You will receive from your foreign customers orders specifying other than your standard material or possibly packed in a different way, but if your customer specified that he wants your product done up in pink paper and in pink boxes, give it to him the way he wants it and do not argue with him about it. Climatic conditions have a great deal to do with the products in the foreign countries and he is on the ground and realizes this condition far better than you do.

You will find that in all of the big shipping centers

there are manufacturers' associations and clubs that are more than willing to cooperate with you and give you the benefit of their experiences. It is my recommendation that whoever handles your export sales become a member of this organization for his own and the company's benefit.

In selling in some of the foreign countries, it is not always wise to sell to a native house, as you will find that there are American or English houses located at these points who are far better situated to handle your product and the question of credit enters largely into this proposition.

We have had experiences in one particular country where certain small dealers, or what we call in this country "pirates," had beautiful letter heads filled up with information in regard to the various lines which they handled, on which they solicited various accounts and upon investigation found that they had absolutely no ground for securing any business.

In shipping to a foreign customer you never should include anything in the shipment unless he is thoroughly notified. Everything in the shipment must be declared and if you put in any advertising matter, samples or anything else of which no mention is made, it means that the customs will inflict a heavy fine. They are always anxious to do this, as in most cases the custom house officials are receiving a percentage of the fines imposed.

It is far better in my estimation to start out by developing one country at a time, and after that country is paying for the work put on it, that another country be taken into consideration. Do not try to cover the entire world under one operation.

Once you start in the export business, keep a concentrated effort on it. If you are going to take it up spasmodically, you will never get anywhere. It is only by slow and constant digging that export business is developed and it may take you a year to secure the confidence of the large companies to whom you want to sell.

Europe a Good Market for Automotive Products

This is opinion of J. F. Kelly, export manager of the electric Storage Battery Co. Accessory prospects are specially bright.

RECENTLY returned from a trip to Europe, J. F. Kelly, export sales manager of the Electric Storage Battery Co., presented an interesting picture of economic and political conditions in England and on the Continent, before making some detailed observations about the possibilities for selling American automotive products. Despite the unsettled conditions which prevail, Kelly believes that a good market exists for all kinds of automotive units. He said in part:

It is my personal opinion that England and the Continent of Europe offer a wonderful opportunity for the development of the American automotive industry. While there are, of course, a great many automobile manufacturing concerns in England, France and Belgium, and these products are very well thought of in their respective countries, it is nevertheless a fact that the American-made automobile is the one that they want to drive. At the present time, even with exchange as adverse as it is, there are a great many American automobiles being sold, and it would seem to me that this would be an admirable time for American manufacturers of automobiles to lay their plans and spread propaganda which will enable them to take the business when business becomes more stabilized again.

There is a very general feeling of optimism among the dealers and representatives of American automobile concerns in Europe. Those of you who have been over there will remember the old broken down taxicabs which are being used in the large capitals of Europe. Before very long all of these cars will have to be replaced, and the class of work which they perform is work in which the American automobile excels any other.

In London, for example, I am told that recently a law has been put into effect which will automatically remove from the streets a great many of the taxicabs which are now in operation. This law has to do with the per-

formance of the cars; that is to say, in order to secure a license to operate a taxicab it must be proved that a car can attain a given speed under difficult operating conditions, and it is known that a large portion of the present taxicabs cannot reach these standards.

A great amount of development has taken place in the construction of roads. Gasoline filling stations are now becoming quite common, and there are a great many other indications pointing to the rapid advance in the automotive industry.

Good Accessory Market

While it is my belief that the American automobile manufacturers have a wonderful opportunity to develop the European field, I believe that the accessory manufacturers have a still greater chance. I found that American motor accessories were being sought, and it seemed to me that were the American motor accessory manufacturers to actively seek business in these countries they could secure a very large volume, notwithstanding the present condition of exchange.

The impression that I gained was that they felt that in the automotive industry American manufacturers were more experienced than they were, and that as a result of this American products must be better. A great many dealers told me that they were convinced that American accessories were superior to the accessories which were manufactured locally and that they much preferred to pay the higher price in order to secure the same standard of quality as was being used in the United States.

It cannot be assumed by American manufacturers who have not done any business in Europe that they can go over there and immediately start to secure good results, but I do feel very confident that by a definite and concerted sales effort on the part of the American motor and accessory manufacturers they can develop a business in England and Europe which will be both profitable and permanent.

Interests of Railroads and Automotive Industry Identical, Fort Says

Vice-President of Boston & Maine believes trucks should supplement steam carriers. Advocates State regulation. Thinks truck most economical up to 20 mile hauls. Motor taxes too low.

By Gerit Fort

THE automobile industry has grown to be a most important customer of the Boston & Maine Railroad and a great many automobile accessories are produced in our territory; indeed, some of the best known products in these lines are manufactured at Boston & Maine stations. From January 1 of this year we have brought into New England a vast number of freight cars loaded with automobiles. In order not to inspire the jealousy of our competitors, I will not give the exact number but it runs into the thousands, and I may as well admit that competing railroads carried as much or more of this traffic. It is true that each of these automotive vehicles, whether passenger cars or trucks, is an active or potential competitor with the Boston & Maine, and it may occasion some surprise, perhaps some of you may at first be slightly incredulous, when I say that we are deeply interested in the welfare of the industry and would not check its development along sound economic lines if it were in our power to do so, which of course it is not.

Anything that adds to the convenience, comfort and pleasure of the people we serve will, in the long run, help the railroad. New England cannot get along without the Boston & Maine any more than it can get along without good highways and automobiles.

Development Rapid

A further reason why I welcome this opportunity to talk to you is that during the period of phenomenally rapid development of automotive transportation there has been considerable misunderstanding on the part of the general public as well as on the part of railroad men, and perhaps of those in the automotive industry, concerning the correct relationship of the two agencies of transportation. Many of our friends have assumed that we are engaged in a competitive war with the motor. For instance, some of our well-wishers and advisers tell us that if we had the will and intelligence to do so we could drive the motor truck from the highway, while others counsel us not to waste time in trying to recover short-haul traffic which has left us forever and which they regard as unprofitable.

It is my purpose in this discussion to try to clear up some popular errors as to the relations of highway and rail transport and to refer briefly to some of the things that ought to be done, and which I may add are probably in the way of being done, to coordinate our service for the benefit of the public and the automobile and railroad industries.

There is no doubt that for very short haulage of freight the motor is superior to the steam railroad. The terminal cost of railroad service is a most important item and when the haul is short the revenue is eaten up by these terminal costs. Freight moved over a steam railroad must, under present conditions, be unloaded from a vehicle to a station floor or direct to the car and this process is reversed when the freight reaches the other end of its journey where it is placed in a vehicle which transports it to its final des-

tinuation. It is obvious that when the freight is transported over the highway from the door of the shipper to the door of the consignee several rehandlings are eliminated.

As yet, railroad men on the one hand and truck men on the other—indeed, railroad men among themselves and truck men among themselves—are not agreed as to what is meant by the term "short haul;" the economic range of the two agencies of transportation has not yet been fully determined but that will come in time with reasonable regulation and taxation. I think there is no doubt that within a short radius of large cities, not to exceed twenty miles, the railroad would be financially better off if it could be relieved entirely of the handling of less than car-load traffic if at the same time it could get rid of its overhead expense in the way of station maintenance. But if the railroad must keep its stations running to take care of only a part of the traffic, it naturally wants that part to be as large as possible.

On the other hand, there is no question in my mind that when truck operators figure their costs in a more dependable manner than is being done today it will be found that the railroad can more economically move a great deal of traffic that is now going over the highways. I am reasonably certain that for distances of forty miles or over, except in certain specialized lines of traffic such as household goods and furniture, the trucks would be better off in the long run if they ceased all effort to compete with the railroads.

I believe that the motor carrier will ultimately find its most important place in our national transportation scheme as an aid and supplement to rather than as a competitor of railroads. The interest of the public, as well as that of all common carriers, lies in cooperation rather than in wasteful competition. The greatest opportunity for the motor trucks and the railroads to coordinate their service is in the terminal areas of our great cities where the capacity of the railroads is most limited and expansion most difficult and costly.

An Outsider's View of Our Industry

"I HAVE been deeply impressed by the breadth of vision and fairness of the gentlemen who represent the automobile industry.

"The interests of the automobile industry and the railroads are mutual—not antagonistic—and time will prove that the legitimate place of the newer agency of transportation is to supplement and not supplant the service of the older one."

A system of store-door delivery that would relieve congestion in our terminal areas and greatly increase the capacity of the freight stations would constitute a most valuable contribution to the solution of the terminal problem and I believe is sure to come. Efficient motor transport would also relieve the railroads of various forms of uneconomical service, such as switching between local stations and short-haul shipments within the terminal area. To secure the fullest benefit from this sort of service the utilization and further development of modern technical equipment, such as demountable bodies, trailers and semi-trailers, containers and container cars, and mechanical handling appliances will be required.

Before the relative spheres of highway transport and railroads can be determined with any degree of permanency it is necessary that certain reforms be introduced into the present methods of handling freight and passengers on the highways and I venture the opinion that the motor industry ought to take hold of these questions vigorously and have these reforms come from within rather than have them forced upon the industry from without.

Trucks as Common Carriers

I believe that trucks and buses which hold themselves out to be common carriers for hire should be treated as other common carriers and placed under the jurisdiction of public regulatory bodies, both State and Federal.

From the standpoint of the railroads it is unfair to allow an unregulated competitor to have practically free use of the highways and to make such rates as it chooses without regard to cost or to the effect on railroad prosperity, while at the same time the railroads are maintaining, policing and paying heavy taxes on their own rights of way and are required to have their rates reviewed and approved by State and Federal public utilities commissions.

From the standpoint of the responsible motor operator, if working as a common carrier, it seems to me that he would be much better off if he were required to obtain a certificate of necessity and convenience before engaging in business over a given route and to have his charges and those of his competitors stabilized. Today, where there is any considerable volume of traffic, motor trucks swarm like flies, cutting not only the railroad rates but their own rates, with the result that many of them are making no money and few are securing an adequate return for their investment and work. I have in mind a number of routes in New England where one or two motor lines might be of public value and probably could be profitably operated, but usually instead of one or two lines there are at least four or five. Some of these cars are running half loaded in one direction and perhaps empty in the other.

From the standpoint of the public, regulation of common carrier motors would seem to be essential, for the public must finally "pay the freight." The railroads are

public servants and have performed and must continue to perform a substantial amount of service which is unprofitable, chiefly in territory where the performance of highway transportation would also be unprofitable. If the highway carrier is to be allowed to take from the railroad a substantial share of its more remunerative business, the traffic remaining to the railroad must take on an added burden in the form of higher rates or impaired service. It may be possible to bankrupt the railroads by allowing unregulated competition but no one can question the fact that they are a public necessity and someone will have to operate them and someone will also have to foot the bill. In other words, the unnecessary duplication of transportation facilities is a wasteful operation which the public ought not to tolerate and will not tolerate when the situation is thoroughly understood.

Regulation Is Essential

It is probable, also, that the motor industry is today failing to bear its fair share of the tax burden of the Nation. This statement may not be true of all the States in the Union, but I think it is broadly true that in many of them the payment of license fees, gasoline taxes and other imposts have not kept step with the cost of modern highway construction and maintenance. Of course it cannot be gainsaid that the public benefits to a substantial degree from good highways, but it seems only just that those who profit most from them, i.e., the users, ought to pay the largest share of their cost. As the demand for new highways, and the cost of maintaining those already constructed, increases, the taxpayers are giving more attention to this question and a study of recent State legislation, proposed and accomplished, indicates that (in spots at least) there may be some danger of placing unjust and prohibitive taxes on the motor industry.

Agreement on Program Sought

Here again it seems to me that instead of working against all increases in taxation, those interested in the development of motor transport should determine on a just and equitable program of taxation, sufficiently flexible to meet the varying requirements of the different States, and use their tremendous strength in furthering the adoption of this program as a nation-wide policy.

This leads me to say that the United States Chamber of Commerce recently created a committee to study the relation of highways and motor transport to other transportation agencies. Its personnel includes automobile manufacturers, officers of steam and electric railroads, and representatives of various industrial groups, such as agriculture, manufacturing, etc. I have the honor to be a member of this committee and I want to say that I have been deeply impressed by the breadth of vision and fairness of the gentlemen who represent the automobile industry.

The committee has tackled its job in a thorough and painstaking manner, the work is progressing satisfactorily, and its report, when finally completed and released by the United States Chamber of Commerce, will, I believe, constitute a valuable contribution to the solution of an important public question.

Cooperation Needed

In conclusion, may I stress a belief which I have intended to convey to you by my remarks—that the interests of the automobile industry and the railroads are mutual, not antagonistic, and that time will prove that the legitimate place of the newer agency of transportation is to supplement and not to supplant the service of the older one.

Message of Railroad Executive Reads:

"I BELIEVE that the motor carrier will ultimately find its most important place in our national transportation scheme as an aid and supplement, rather than as a competitor, of the railroads.

"The interest of the public, as well as that of all common carriers, lies in cooperation rather than in wasteful competition. The greatest opportunity for coordinated efforts is in the terminal areas of our great cities."

Laws of Bearing and Dry Friction Similar When Loads Are High

PART I.

This fact is proved by experiments made in England, from which conclusion is drawn that under these conditions "boundary lubrication" exists. Many believe that assertion is not fully substantiated. Value of oil does not depend on viscosity alone.

By P. M. Heldt

RECENT experiments made for the Lubrication Research Committee of the Department of Scientific and Industrial Research of England by Dr. T. E. Stanton, formerly head of the National Physical Laboratory, have revived interest in the laws of fluid friction and lubrication. Stanton claims to have established the existence of "boundary lubrication" under certain conditions of high specific bearing load, but it should be stated at once that there exists a large body of opinion that the claim is far from having been properly substantiated.

The term "boundary lubrication" dates from the time of the classical experiments of Beauchamp Tower (1883-1884) and the theoretical analysis based thereon by Osborne Reynolds (1886). Tower's experiments, which were made at the instance of the Institution of Mechanical Engineers and are believed to have been suggested by the experimental work along the same line carried out at Cornell University by Professor Thurston some ten years earlier, showed that in a well-lubricated bearing the surfaces of the journal and the bearing are always separated by an unbroken film of lubricant and that the relative motion of journal to bearing produces a shearing action between adjacent layers of the molecules of the lubricant, but no slipping of the molecules of the lubricant adjacent to the metallic surfaces relative to these surfaces.

As the specific load increases, with the same lubricant the film separating the bearing surfaces becomes thinner and thinner, and finally a condition may be reached where the film has a thickness of only a single molecular diameter or perhaps two such diameters. With only a single layer of molecules in the oil film it is, of course, necessary, if there is any relative motion at all, that the molecules of the lubricant slip over the molecules of the metal, and this is referred to as "boundary lubrication."

The earlier experimenters and theorists dispose of this supposed form of lubrication as merely marking the transition from effective lubrication to seizing, and as therefore of no particular practical value. But recent in-

vestigations have resorted to it to explain the fact that certain kinds of friction bearings, such as the teeth of high duty worm gears, are capable of withstanding exceedingly high unit pressures.

In order to convey a clear idea of just what is understood by "boundary lubrication" by those recent investigators who have used the term to explain some of their results, the writer can do no better than to quote an explanation given by R. M. Deeley to the editor of *The Engineer*: "In the case of a white metal bearing resting

on a steel journal, imagine that, passing radially outward, there is, at the point of nearest approach, first a layer of steel molecules, next a layer representing a union of some sort between the molecules of the steel and those of the lubricant, then a layer of oil molecules, which is succeeded by a layer of oil-and-white metal molecules, and, finally, a layer of white metal molecules. If the intermediate stratum of pure oil is reduced to a thickness of one or two molecular diameters or if it is entirely absent and the metals are separated only by the absorbed layers, the conditions of boundary lubrication exist."

Deeley was a member of the (British) Lubricants and Lubrication Inquiry Committee which was established during the war period and made a report in 1918. In this report it is stated that the value of a lubricant does not depend wholly on its viscosity, as many moderately thick lubricants will not wholly prevent wear, while others will.

"Oiliness" must be regarded as an important property of lubricants. Under many conditions the bearing surfaces remain entirely separated and no wear occurs, but in other cases the surfaces touch each other.

In the report referred to experiments with an oil-testing machine devised by Deeley are described. In this machine the ends of three 5/32-in. pins are caused to slide over a plain surface while under a pressure varying from 8.6 to 52 lb., corresponding to unit loads of from 150 to 900 lb. per sq. in., the force required to start motion being measured. The mild steel pins were opposed by cast iron

STUDY of lubrication in recent years has brought forth considerable comment and discussion from engineers throughout the automotive industry. Experimental work has resulted in the development of new theories, some of which are well substantiated and some of which are still open to question.

In a series of four articles, of which this is the first, P. M. Heldt will analyze recent developments in lubrication theory and practice and will discuss those phases of the subject which are of major interest at the present time. Comments from other engineers on the topics treated will be welcomed.

and gun metal plates. With different lubricants and the two combinations of metals the following friction coefficients were obtained:

	Mild Steel on Cast Iron	Mild Steel on Gun Metal
Clock oil	0.271	0.275
Bayonne oil	0.213	0.234
Typewriter oil	0.211	0.294
Victory red	0.196	0.246
F F F cylinder	0.193	0.236
Manchester	0.183	0.263
Castor oil	0.183	0.169
Sperm oil	0.127	0.189
Trotter	0.127	0.152
Olive	0.119	0.196
Rape	0.119	0.136

Friction Varies with Metal

These coefficients are those of static friction, being derived from the force necessary to set the pins in motion. The conclusion is drawn from these results that static friction varies not only with the oil but also with the metal of the bearing, and that "oiliness" is rather an effect produced by the lubricant upon the metal surface than a property of the lubricant as a liquid.

When the skin of a metallic surface has been removed by a file, the file cuts the metal more readily, but if such a clean surface is lightly oiled, or even if the hand be rubbed over it, the file will not cut so easily. Oily liquids, the report states, would appear to be those whose molecules readily and firmly enter into combination with the molecules of the metal of the bearing surfaces. This view is supported by the following statement made by Roberts Austen in the Fourth Report of the (British) Alloys Research Committee: "The continuation of these experiments has led to a recognition of the remarkable fact that diffusion of metals can be readily measured not only in the molten state but also in solid metals. It is certainly remarkable that gold placed at the bottom of a cylinder of lead 3 in. high and heated to only 400 deg. Fahr., which is far below its melting point, and while it is to all appearances solid, will have diffused to the top in notable quantities by the end of three days."

Deeley says it is possible that the molecules of a liquid lubricant, or those of a lubricating grease, penetrate the metal for some considerable distance in a similar way and form on its surface a comparatively thick film of a compound which acts as a lubricant.

Reference has been made already to the recent report of the Lubrication Research Committee, for which Dr. Stanton is responsible. One of the conclusions drawn from the results of the experiments on which this report is based is that "in general engineering practice the lubrication of all machine details in which the relative motion is of a reciprocating character, may be taken as boundary lubrication, and that consequently in such cases the improvements in efficiency due to the addition of fatty acids to the lubricant employed will be realized."

Experimental Machine Described

Stanton's experiments were made with a machine as illustrated in Fig. 1. The experimental bearing, 1.7 in. in diameter by 3 in. long, is contained in a cast iron housing suspended from a bracket bolted to the cross girder supporting the roof of the workshop by means of a pin joint, which will allow freedom of adjustment in a direction at right angles to the plane of the swing. By this means the pressure between the surfaces will be symmetrical on either side of the plane of oscillation.

The total arc of contact of the journal and bearing is restricted to 45 deg. on either side of the vertical by cutting away the metal of the bearing in the region out-

side this arc, as shown. In order to approximate to the condition obtaining in worm gears that any two elements of surface in contact shall each be covered with fresh lubricant before the next contact, a series of special grooves was cut on the 90-deg. arc of the bearing which supported the load. By allowing the lubricant free access to those grooves, a copious supply to the actual bearing surfaces was ensured. A precisely similar series of grooves, intersecting these at right angles, was cut on the surface of the journal. To obtain this condition, the helices were made right-handed for the bearing and left-handed for the journal, and had a pitch of three times the diameter. By this means the total area of contact of the surfaces was reduced to 0.25 sq. in. In considering

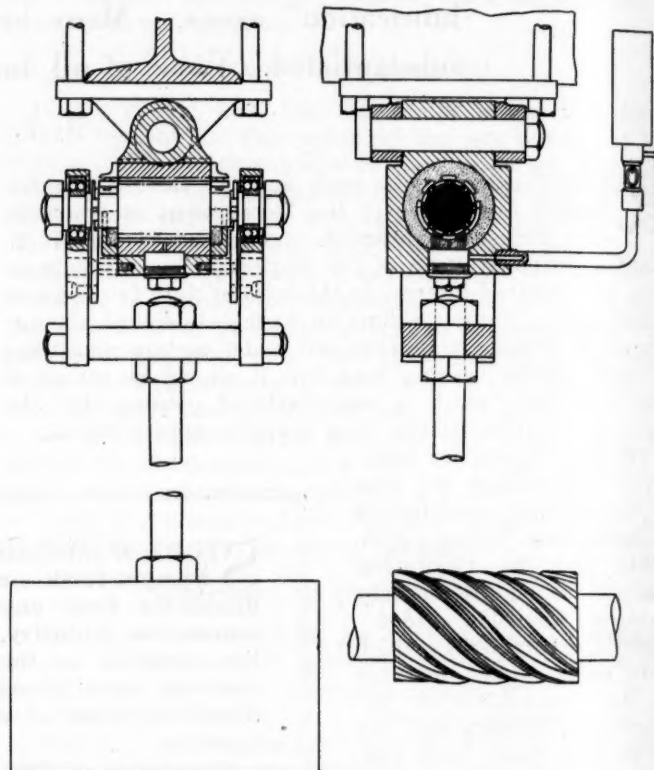


Fig. 1—Machine used by Stanton in making lubrication experiments

the attachment of the pendulum rod to the journal, it was thought advisable to provide means whereby the damping of the pendulum due to air friction alone could be studied, and for this purpose a locking device was adopted, by means of which the rocking shaft could be fixed either to the pendulum rod or to the bearing. In the latter case, the pendulum could oscillate on ball bearings fitted to the extension of the shaft on either side of the journal, as shown in Fig. 1. These ball bearings were housed on flitch plates on either side, and lugs fixed to the rocking shaft were provided, so that they could be coupled to either the flitch plates or the bearing casting. The lubricant was supplied by a sight-feed lubricator to a chamber in the base of the bearing casting, from which the oil was conveyed by the passages shown to the various helical grooves cut in the bearing. In order to maintain a copious supply of oil to the surfaces, end covers were also fitted to the bearing casting, in the manner shown in Fig. 1. By this means, oil-bath conditions were obtained over the 90-deg. arc of contact of journal and bearing.

From the damping effect observed when the pendulum was set in motion, that is, the difference in magnitude of successive arcs of swing, and by making allowance for

the air resistance, which was first determined experimentally, the coefficient of friction could be determined. The results are plotted in the form of coordinate diagrams with the abscissas representing time and the ordinates angle of swing in degrees. Each graph is a straight line except near the lower end, where the swing has been reduced to almost nothing, the line extending from the vertical axis downwardly to the horizontal axis, and the farther the point at which it crosses the horizontal axis is from the origin, that is, the greater the time taken to entirely damp out the swinging motion, the smaller the coefficient of friction.

Experiments on Grooved and Ungrooved Bearings

Most of the experiments with this machine were made on journals of hardened steel mounted in bearings of phosphor bronze or white metal, the bearing and journal being grooved as described. However, tests were also made with full or ungrooved bearings and journals, and it was found that the latter had a higher friction coefficient. The conclusion that the lubrication in the grooved bearings is of the boundary type is based on two observations, as follows: 1. The graphs showing the decrease in ampli-

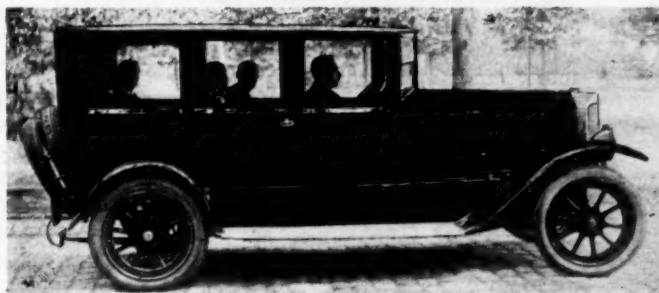
tude of deflection with time are straight lines, indicating that the coefficient of friction was independent of the amplitude of swing and therefore independent of the surface speed of the bearing. 2. The slopes of the graphs for specific loads of 1000 and 2000 lb. per sq. in., respectively, are identical, showing that the friction is proportional to the load. These relationships are those of dry friction and entirely different from those of lubricated friction. The speed in every case was exceedingly low, however, as compared with circumferential speeds of modern high-speed bearings. The length of the pendulum was about four times that of the second's pendulum, and as the time of swing is proportional to the square root of the length, the time of its swing from one extreme to the other should be about 2 sec. The maximum swing from the position of rest was 40 deg., and as the diameter of the journal was 1.7 in., the average surface speed for the maximum angle of swing figures out to only 0.6 in. per sec. When a full or ungrooved bearing and corresponding journal were used the damping curve of observation points was concave to the time axis, indicating that the friction increased with the amplitude of swing, that is, with the velocity.

Low Center of Gravity Features German Car

Floor of body is brought down to level of running boards and bottom of underpan. Seats lowered accordingly. Frame is wide.

FOR a good many years there has been a tendency to lower the center of gravity of passenger cars, to render them more stable and thus safer for driving at high speeds. At one time this development was interfered with to a certain extent by trouble with the gravity feed of fuel from a front seat tank under extreme conditions (on steep up-grades with nearly empty tank), but this handicap was removed by the introduction of the vacuum feed system. The demand for low construction on the part of the public is well indicated by the fact that often changes are made in design which, without actually changing the location of the center of gravity, merely give the appearance of a lower-hung car.

A car with an unusually low center of gravity is the Heim, manufactured in Mannheim, Germany, of which a photograph and diagrammatic side and rear elevations are shown herewith. In this car the frame and the power-plant are the usual distance from the ground, and the lowering of the center of gravity is effected by bringing the floor of the body down to the level of the running boards and the bottom of the underpan, lowering the seats correspondingly. The frame is of more than the usual width, and the seats are arranged between the frame side members. The floorboards of the front compartment are an extension of the engine underpan, and at the back of the rear compartment there is a cross wall which is located directly in front of the rear axle. The transmission, which

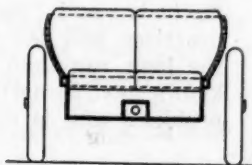
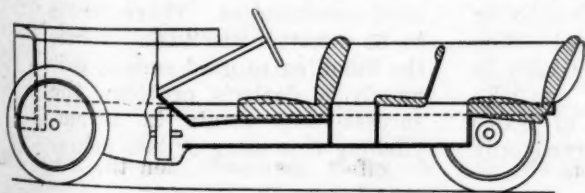


New Heim car

is separate from the engine, is located under the front seat, and the cover plate, through which lubricant must be introduced, is said to be quite accessible. The clutch shaft extending to the gearbox is inclosed in a low projecting inverted channel, while the propeller shaft is inclosed in a similar but deeper channel. The rear seats are located above the rear axle and supported directly on the frame side members, hence the strains on the body framework are reduced and the body can be built lighter.

The advantages claimed for this construction are that it reduces the risks of skidding and that it steadies the car on curves.

The car has a four-cylinder 3 3/16 by 3 15/16 in. engine claimed to develop 46 hp. at 2800 r.p.m. It is said to have a speed of 63 m.p.h. and to run 23.5 miles on one U. S. gallon of fuel. The car has a wheelbase of 118 in., a track of 53 in. and with six-passenger open body weighs 2534 lb. ready for the road. The weight of the chassis is 1600 lb.



Outline drawing showing how center of gravity has been lowered

Just Among Ourselves

Another Ford Price Cut Reported to Be Imminent

CROESUS, according to well authenticated historical data, was the outstanding gold plated plutocrat of his day, but compared with Henry Ford he possessed only a modest fortune. Ford's cash resources are fabulous. He could give \$2 to every man, woman and child in the United States and still be worth about \$400,000,000. His amazing current earnings lend color to the report that he will announce price cuts ranging from \$25 to \$50 per model within the next month. It is understood that he will strive for a production of 10,000 a day next year and stories are again heard on all sides about a six-cylinder car, with conventional gear shift, which will give about twice as many miles per gallon of fuel. Needless to say, there is no confirmation of the rumors of a new car but no matter what he has in mind he can be counted on to turn out about half the cars made. The importance of his contribution to the cause of individual transportation never can be computed.

Merits of 4-Wheel Brakes Are Discussed Eagerly

FOUR wheel brakes, as was to be expected, are discussed with eager interest wherever motorists gather as well as within the industry. The public has not yet handed down its verdict, and until it does speculation will be more or less idle. There is no lack of propaganda on both sides of the question. One company which has equipped its new models with them contends that every manufacturer will be forced to adopt them within six months, or be driven out of busi-

ness. On the other hand, there are persistent although unauthenticated reports of accidents resulting from faulty operation or adjustment. Quite aside from the merits of four-wheel brakes, however, the discussion which has centered around them has served the highly valuable purpose of arousing interest in the whole question of brakes. Owners have been made to realize that faulty brakes are the cause of many accidents and they are having more frequent inspections made. The controversy also has stirred manufacturers and engineers to closer study of the systems they employ.

Vane Heralds the Passing of "Brainless Wonder"

C. A. VANE, general manager of the National Automobile Dealers Association, is rather a plain spoken person. He has spent most of this year telling automobile dealers in simple, one-syllable words, some of the things that have been the matter with them. Now, in heralding the coming of a new type of "factory traveler," he records the passing of the "brainless wonder" whose only motto was "move the stuff." Vane says that "this forceful feeding has been one of the practices in the industry against which dealers have rebelled." He has found, however, that they welcome merchandising suggestions or ideas. The factories also are beginning to realize that fact and they are learning that a traveler who can give dealers practical assistance in applying good merchandising methods and improved shop practices will sell more cars in the long run than the one who knows next to nothing of dealer problems and is concerned only

in driving them into taking larger stocks.

Real Merchandisers Needed as Factory Travellers

"THE good car and the good dealer are beginning to hook up," Vane declares, in reviewing the trend toward abler factory field men. "The banker is beginning to take considerable interest in the tactics of the factories as they affect the possibilities of the dealers making money and building up a permanently profitable business. It has become imperative that the territory man shall be a merchandising executive capable of showing the dealer good merchandising practices and aiding the dealer in adapting them to his specific problems. Some factories are already seeing this and several have made gratifying changes in the last year. These factories are being rewarded because their dealers are prosperous. And lastly, but perhaps most importantly, the customers of these dealers and the buyers of these cars are getting far better attention and results on maintenance than they were under old conditions."

Used Car Sales Managers Proposed for Factories

SEVERAL successful dealers have suggested recently that every factory should have a used car sales manager who would devote all his energies to promoting the sale of new products by keeping dealers' floors clear of used merchandise. There seems to be merit in the idea. While the handling of used cars is primarily a dealer's problem, the success they attain in accomplishing this more or less monu-

More or Less Pertinent Comment on Topics of Current Interest to Men in the Industry

mental task is of deep concern to the manufacturers they represent. When a dealer's capital is tied up in old cars he can't buy new ones. There is much the factory can do in teaching its selling force how to merchandise used cars successfully and profitably after they "buy 'em right." If the right kind of man was delegated to this task he would earn his salary many times over. One of his jobs would be to present the used car question at all factory conferences on sales plans. The more plant executives know about it the more sympathy they will feel for the dealer to whom it is a constant bugaboo.

American Automobiles Sell Because Cheap and Good

JOHN N. WILLYS has a sense of humor and in contending the other day that American automobiles lead the world because they are both cheap and good, qualities which seldom are associated, he told this story:

"Mike was visiting Pat and Pat sat in a rocker and rocked himself all over the room while they smoked and visited. Now he was by the window, then he was by the stove and then half way out into the hall.

"'What ails ye, Pat,' demanded Mike, at last. 'Why are ye rockin' yerself hither and yon and elsewhere all the time?'

"'Ye know Tim Riordan?' countered Pat. 'Well, he sold me a watch cheap and if I stop movin' it don't go.'"

Road Courtesy Universal Throughout England

THE unfailing courtesy of motorists on the road throughout England made a

vivid impression on Coker F. Clarkson, general manager of the S.A.E., when he toured almost the entire length of the island about a month ago. When you meet a car coming in the opposite direction, Clarkson says, it almost always tries to give you more than your share of the road. Trucks and buses run along well over on their own side, so that passing them in a passenger car involves no difficulty whatever. Road courtesy seems to be a firmly rooted custom. Naturally, the pleasure of touring is enhanced very greatly.

It would be difficult to say why England differs so much from the United States in this respect, but it is certain that the custom of courtesy, once become common, grows more pronounced every year. The courtesy campaign instituted by the N.A.C.C. last year was a highly commendable effort and it bore considerable fruit. It is understood that further work along this line is contemplated. Anything that can be done to discourage the road-hog and facilitate driving is well worth while. It looks as though we still have a few things to learn from our British cousins.

Olds Will Begin 27th Year with New Low Priced "Six"

WE join with the rest of the industry in extending our hearty congratulations to the Olds Motor Works upon its 26th birthday. The company has witnessed all the changes and developments which have taken place in the industry. It was the pioneer in building automobiles on a commercial scale and its career has been as honorable as it has been long. The beginning of its 27th year will be marked by the introduction of a radical-

ly new model in a different price class, and its future promises to be as successful as its past. The entire industry is deeply interested in the new Olds which will be a six instead of a four but which will sell well under \$1,000, it is understood. The presentation of new and low priced 6-cylinder cars will be a feature of a year which has been marked by an unusual number of mechanical changes. In addition to the light sixes about which the industry has heard still another will be placed in the field by one of the highly successful companies.

English Soon to Abandon Left Hand Traffic Rule

DR. JOHN A. HARRISS, New York's special deputy police commissioner in charge of traffic, has come back from Europe with the report that Sir William Horwood, commissioner of police at Scotland Yard, will present in Parliament an act which would change the rule of the road from left-hand to right-hand driving. If it becomes effective in the British Isles it probably will be adopted in all Great Britain's dominions. Americans never have been able to understand why the English and other foreigners insisted in having traffic move in what, to us, is the wrong direction. A more practical consideration, however, has been the necessity of equipping cars for export with right hand drive. The expense involved has not been heavy but it has interfered somewhat with conventional manufacturing procedure. Dr. Harriss said Sir William's proposal was the most important information he had heard in relation to the regulation of traffic.

J. D.

Good Dealers Will Help to Stabilize Retail Tire Market

Some executives believe type of dealers is not as high as it once was. Petty bargainer has entered field in cities and is said to make profits scarce for legitimate merchant. Country agents in better condition. Car salesman can be used effectively.

By Norman G. Shidle

WHAT sort of men will be selling tires to the consumer ten years from now? Will the general type of tire dealer be better or worse than that of the retailers who have been engaged in the business up to the present time? These questions are puzzling executives in many tire companies, because in the answer to them lies the future of the tire industry. The character of dealers has a very definite relation to the stability and general prosperity of manufacturers.

A feeling exists in some places that the class of men handling tires today is not as high as it was a few years ago. Critics of present representation say that the constant fluctuation of tire prices, the multitude of merchandising practices which have opened the way to bargain sales, and the constantly recurring demoralization of the retail market have opened the way for retailers of the smallest and most petty character while making it difficult for a high grade, stable merchant to stay in the business.

While competition of this kind makes it difficult for the high-grade, exclusive tire merchant to make a living, it will not affect so strongly automotive dealers who handle other lines. The passenger car dealer, firmly established in the vehicle business, is in an excellent position to sell tires on a service and quality basis.

Car Dealers Sell Tires

He has little incentive to cut prices on replacement sales, and through his sales force and service station comes into constant contact with tire users. Taken by and large, the passenger car dealer is a high type of retailer. He usually stands well in his community and takes a real interest in various civic activities. He provides an excellent medium for tire distribution.

Many of the critics of the representatives, of course, speak without full consideration of the able men throughout the country who are making good profits from tires year after year, but their statements have some basis in fact and experience. The complexity of tire marketing methods, most of which involve some sort of cut-rate offer, has undoubtedly done much to attract to the retail tire field the sort of merchant who thrives on bargaining, haggling over prices, and other primitive trading practices. Particularly has this been true in the big cities. Nobody in New York, for example, would think of paying list price for any tire on the market if he knew anything at all about buying tires.

The consumer can never be sure that he is paying the lowest price possible unless he canvasses a number of stores, and even then he cannot be sure that someone

else buying from the same store may not get a lower price an hour or two later. The sales manager of a big tire company is responsible for the statement that he doesn't see how any tire dealer in New York can make money under present conditions, although he does believe that dealers in smaller towns are selling for list or nearly list price in many cases.

Petty Traders Increase

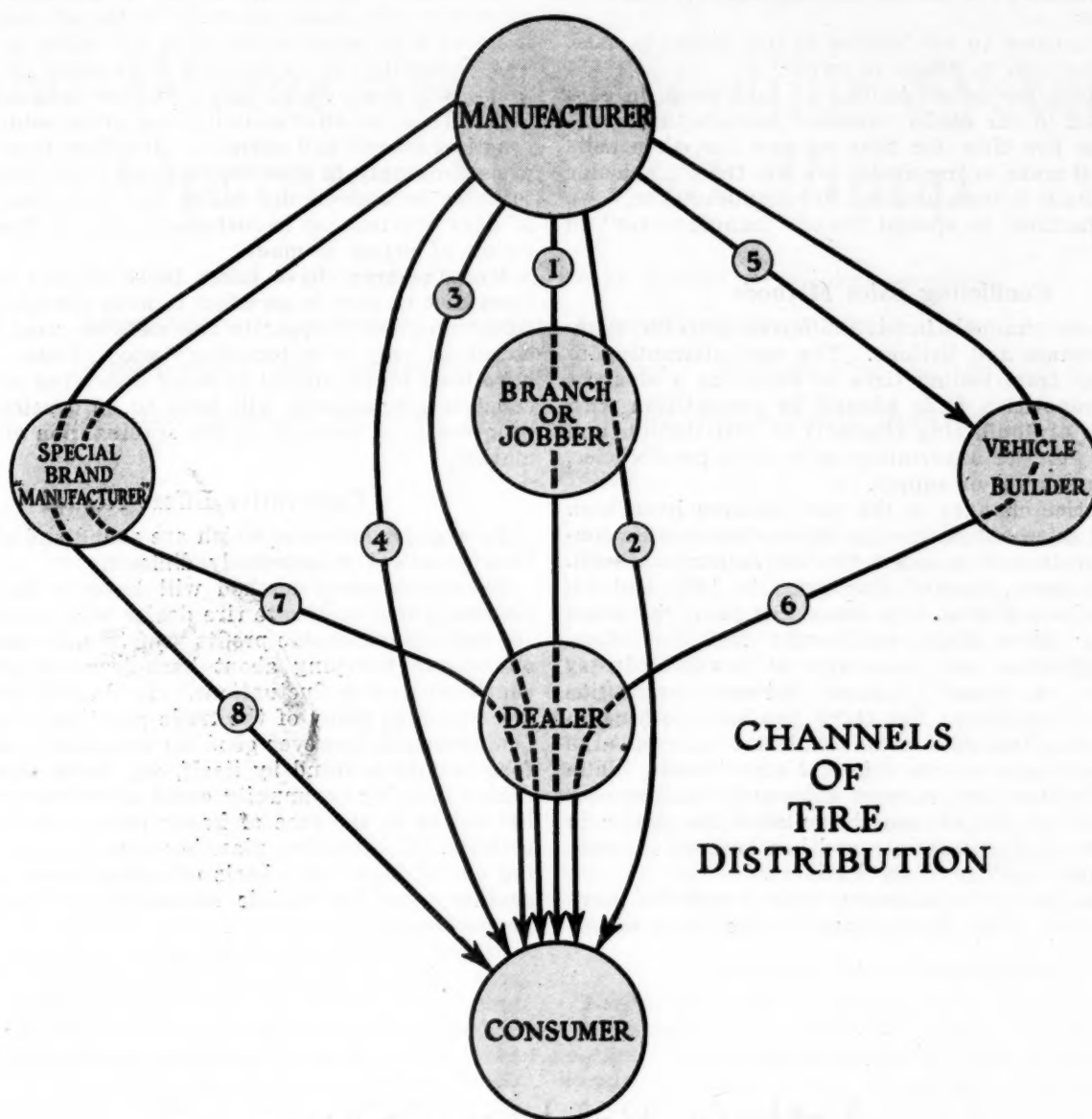
The entrance of the huckster type of merchant into the tire field has made it increasingly difficult for the legitimate dealer to sell at a profit and to conduct his business on a sound basis. The petty trader is content with almost any profit, no matter how small; he operates on a shoestring and has little regard for his personal living conditions. He probably goes out of business himself after a few months or years, but in the meantime he has put the legitimate dealer on the rocks as well. Men who are used to selling merchandise on a quality and service basis will not and cannot permanently compete with low-grade competition of this kind.

Yet the high-grade dealer is essential to the permanent growth and stability of the tire industry. The "gyp" dealer does not offer a constant, lasting medium for the distribution of tires. Price is his only sales argument and immediate gain his only personal interest. He is here today and gone tomorrow. The manufacturer cannot count on him to handle a regular share of the factory production every month or every year. He simply obtains bargains when, where, and however he can.

The situation has not yet reached a critical stage, but the trend is pronounced enough in some sections to call for serious attention and study. The presence of such merchants is detrimental to the future of the tire business, but it cannot be eliminated over night. Retail selling of tires by this class of dealers has been brought about as a result of a variety of customs, all of which will have to be modified before the evil can be remedied.

Other Industries Better Off

This type of selling does not afflict other industries as it does the tire business, and no fundamental reason exists for the tire situation being particularly bad. The phonograph business has proceeded for many years without having been overrun by "gyp" dealers to any great extent. Despite a tremendous overproduction of phonographs in 1921, there was no reversion to primitive barter and "every-man-for-himself" trading in the retail field. A few who were "in the know" were able to get cut rates on phonographs during the slump, but so far



CHANNELS
OF
TIRE
DISTRIBUTION

How Tires Get From the Manufacturer to the User

TIRES go from the manufacturer to the consumer by 8 distinct routes at the present time. Tire users in urban areas usually receive a part of their tires through every one of these channels. In other sections, fewer channels are used simultaneously, but practically nowhere in the United States is the distribution plan confined to a single method.

Channel 1 is the simple one, commonly used in the distribution of most other products of similar character.

Channel 2 results in direct retail competition for the dealer from the branch or distributor from whom he buys.

Channel 3 permits certain dealers to buy direct from the manufacturer.

Channel 4 puts the manufacturer in direct competition with the dealer. Direct sales to big commercial accounts and direct-by-mail efforts on the part of the manufacturer come in this classification.

Channel 5 is traveled by tires sold to the car manufacturer for original equipment. They reach the consumer only on the new car which he buys.

Channel 6 carries tires, sold at a low cost for original equipment, straight to tire dealers at a price less than the dealer can get them for from the tire maker.

Channels 7 and 8 bear tires branded with a special name to so-called manufacturers, who in turn sell them, sometimes through dealers, sometimes direct to the consumer, and sometimes in both ways.

as the public at large was concerned retailing went on at list prices just as before.

Perhaps the difference lies in the relative simplicity of distribution lines in other industries as compared with those in the tire business. In most manufacturing industries of similar character the product reaches the consumer by the following simple channels:

1. Manufacturer to jobber.
2. Jobber to dealer.

3. Dealer to consumer.

Numerous minor variations to this scheme exist, and subdealers often enter the system, but the outline given covers general practice fairly well, except for bankruptcy sales and temporary events of like character.

Compare with this the channels of distribution in the tire business. Here are a few of the ways in which tires reach consumers:

1. Manufacturer to user (big commercial accounts).

2. Manufacturer to branch (or distributor) to dealer to user.
3. Manufacturer to car builder to tire dealer to user.
4. Manufacturer to dealer to owner.
5. Manufacturer to car builder to equipment on cars shipped to car dealer; another manufacturer substitutes five tires for four on new car, then sells original make to tire dealer for less than tire dealer can obtain it from original tire manufacturer.
6. Manufacturer to special brand "manufacturer" to user.

Conflicting Sales Methods

All of these channels involve different price arrangements, discounts and listings. The man attempting to make money from selling tires at retail as a straight business proposition finds himself in competition with a multitude of conflicting channels of distribution and is left in a maze of uncertainty as to sales possibilities, profits, and sources of supply.

Official price changes in the tire business have been so frequent in recent years as to cause considerable confusion even though unaided by the factors outlined. Tire prices were changed five times in 1922 and already have been altered four times this year, the latest cut having taken place within the last few days. Price fluctuations are necessary in every industry to preserve a proper balance between production costs and selling prices, but there has been nothing in the economic situation during the last twenty months to necessitate eight or nine different adjustments. While designed, doubtless, to increase sales and stabilize production, each of the changes has placed the dealer in a further state of uncertainty and has lowered his confidence in the stability of the business.

To official list price changes some companies have added sub-rosa price fluctuations in the form of so-

called quantity bargain offers. These offers in some cases give the dealer some 10 to 15 per cent discount if he buys as many as six tires and tubes at one time. The "quantity" in such cases is so small as to permit practically every dealer in the country to take advantage of it. Thus the offer constitutes a price reduction to all practical intents and purposes. It differs from an official price drop only in that the manufacturer does not have to make rebates to the dealer for stock bought in the 30 days previous, as is customary when a downward revision of prices is made.

Manufacturers have taken these various price steps from time to time in an effort to meet changing business conditions, but frequently the methods used have been beneficial only in a temporary way. These expedients have been highly useful in many cases, but permanently constructive methods will have to be developed if real progress is to be made in the stabilization of the retail market.

Cooperative Effort Needed

To suggest remedies which are sound and at the same time practical is extremely difficult.

Eventually some method will have to be found for providing the legitimate tire dealer with an opportunity for making reasonable profits year in and year out without undue worrying about back-door competition and continuous price fluctuations. To do this would mean discontinuing many of the trade practices now common. One company, however good its intention, could not afford to take a stand by itself, any more than a single dealer in a big community could afford to stand by his list prices in the face of heavy price cuts by his competitors. Cooperative planning and cooperative carrying out of plans on a basis of mutual honesty and fair dealing offer the visible means of effecting material improvement.

Arthur Brisbane Says—

"NOT to have an automobile is to be just HALF alive.

"One of the saddest sights in life is a wild goose, caught, its wings clipped, so that it cannot fly, wandering about a pasture with the tame geese, looking up wistfully as the wild birds fly past.

"Many human beings are like that wild goose and, unlike him, their condition is their own fault.

"Once the human race was entirely wingless. It moved slowly over the earth at such speed as its own legs or a horse could supply.

"Then came steam and the locomotive to carry human being in CROWDS on journeys of necessity.

"Now there is the automobile, the individual wings for every family, for every little group and for every little individual.

"You wouldn't think much of a goose that COULD fly if it did NOT fly.

"The man that MIGHT have wings, that MIGHT go out to see the country, the lakes, the hills, the beautiful Autumn sunsets, and come home feeling that he is part of the world and KNOWS THE EARTH ON WHICH HE LIVES, is to be pitied if he lets the chance go by him.

"But there need be no such man.

"Some suffer from lack of imagination. They have walked or ridden in street cars or trains all their lives. They know that millions have found happiness, closer family life, better health, thanks to the automobile. But they have put it off.

"They have said, perhaps, 'I cannot afford it, JUST YET.' The fact is that they cannot afford NOT to have an automobile.

"The most expensive thing is poor health.

"The most depressing thing is a dull life.

"We are on the earth for a few years. We ought to see the earth, travel it, know it, and possess it.

"And that the automobile alone makes possible."

(Reprinted from an editorial appearing in New York Journal, Sept. 5, 1923)

New Water-Steam Cooling System Operates Without Pump

Can be used with either conventional forced or thermo-syphon circulation. Condenser prevents loss of water. Latter flows transversely and vertically through core. Radiator is said to be uninjured by freezing and has device to facilitate thawing.

By C. I. Preston

A SIMPLE, yet apparently quite rugged, cooling system, known as the Lonergan system, which includes a condenser for steam formed in the cylinder jacket, a novel form of radiator construction, characteristics which are said to prevent injury due to freezing and means for rapid thawing out if frozen up, has recently undergone tests which appear to have demonstrated ability to produce satisfactory cooling under severe conditions. The writer has witnessed the system in successful operation on several cars, as well as in airplane service. Either a pump of the usual centrifugal type or thermosyphon circulation has been employed. A positive pump is not required. Neither is any pressure relief valve needed.

This system, shown diagrammatically in Fig. 1, has a tight filler cap, and the only opening to the atmosphere is the vent at the top of the condenser. Water from the bottom of the radiator enters the cylinder jackets either by pump or thermosyphon action, no special pump being employed. The hot water and steam pass over to the top of the radiator, where condensation and cooling take place. Part of the steam goes to the condenser, where the condensate soon forms a water seal. When the engine is throttled down, or the cooling blast of air is accelerated sufficiently to make condensation more rapid than evaporation, a partial vacuum occurs in the top of

the radiator and returns the water from the condenser.

The system, as the writer has seen it installed on a Cadillac Eight, a Dodge and a Ford, operates without a circulating pump, and will cool with the water a considerable distance below the top tank of the radiator.

In the radiator, as well as in the water jackets, the Lonergan system utilizes a turbulent water flow to increase the efficiency of cooling. Instead of spreading the water out over a series of passages and letting it trickle slowly down through the radiator, the latter is so designed that water flows from side to side and from front to back of the radiator a larger number of times before it reaches the bottom, traversing a much longer path than in the standard types of radiator, with a much higher velocity, which results in turbulent flow and a high rate of heat transfer.

Radiator Core Construction

The radiator core is composed of a number of the elements similar to that shown in Fig. 2, placed one above another. Each element is a tank, with a central vertical partition transverse to the air flow. Openings in the top and bottom of the tank and in the central partition direct the flow of the water as shown by the arrows. Five-sixteenth-inch air tubes are inserted through holes punched in the front, center and back plates of the tank. The front end of the tube is expanded to hexagonal shape and the rear end is swaged down slightly to facilitate threading through the holes in the plates. The tubes are soldered into place at front and rear. As the air tubes are spaced $\frac{1}{2}$ -in. center, there are no restricted water passages to clog with scale. The radiators are tested for leaks with a 15-lb. per square inch air pressure.

A novel feature of the Lonergan system, especially as applied to road vehicles, is a means for thawing out a radiator which has frozen up when not in use. A three-way valve shown in the diagram, Fig. 1, is arranged to connect either to the condenser pipe or to a heating pipe leading from the steam chamber at the top of the radiator. The heating pipe is a flattened tube running through all of the radiator tanks and opening at the bottom to atmosphere. The radiator is designed, it is claimed, in such a way that it will not be injured even though the contents be frozen solid. In such a case, however, steam will form in the upper compartment when the engine is run and if this steam be allowed to escape through the heater tube it will rapidly thaw the ice formed in the water spaces, after which the three-way valve is again turned to admit the steam to the condenser as in normal operation. Because of this arrange-

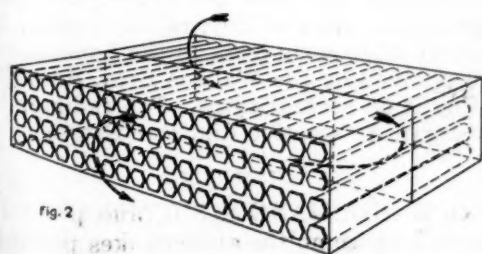
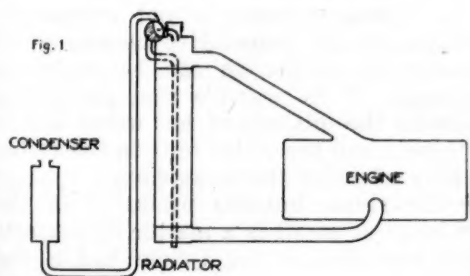


Fig. 1—Diagram illustrating arrangement of Lonergan cooling system

Fig. 2—Sketch showing novel method of water circulation in one of the radiator core sections

ment it is said to be unnecessary to use non-freezing solution in the radiator.

A ground test on a C-6 engine installed on a Curtiss Mountain Oriole airplane, the engine being equipped first with the Lonergan radiator and condenser, and later with its own radiator, was made some months ago. Over-all dimensions and shape of the two radiators were the same, and the weight was the same within a few ounces. The same amount of water was used in the system in both cases. With the Curtiss radiator, the system was entirely full of water, but the Lonergan, due to a larger water capacity, had water only a little more than half way up the core, the upper portion acting as condenser surface. Circulation by the engine pump was used in both cases.

Test Results Given

After a warming run of only 2 min. 40 sec. with the Lonergan radiator and condenser, the engine was opened wide to a speed of 1450 r.p.m., which is its normal ground speed with the heavy propeller used. It ran smoothly with no evidences of overheating, the corrected water temperatures remaining practically constant at 187 deg. Fahr. at inlet to cylinder block and 220 deg. Fahr. at top of radiator. The temperature at the top of the radiator may have been even higher, for there is reason to believe that the recording hand of the thermometer had reached the end of its travel. After running wide open for 27 min. 40 sec. the engine was stopped.

With the Curtiss radiator, the engine was given a warming run of 3 min. and then opened to 1450 r.p.m. Four minutes after opening the engine wide the temperature at the top of the radiator reached 175 deg. Fahr., water started to come out the overflow, and the engine began to miss. One and one-half minutes later a temperature of 190 deg. Fahr. was reached, and steam issued from the overflow. Firing became more and more irregular and the tachometer dropped back to 1300 r.p.m. Six and one-half minutes after opening the engine wide it was switched off, for it was spitting, knocking and firing irregularly. The temperature at top of radiator just before switching off was 215 deg. Fahr., or at least 5 deg. Fahr. lower than that at which the engine had run smoothly with the Lonergan system. A great cloud of steam was leaving the radiator.

TABLE OF COMPARATIVE RADIATOR DIMENSIONS

	Lonergan System	Original System
Approx. bh.p. of engine	135	135
Air temp.	38 deg. Fahr.	41 deg. Fahr.
Weight of radiator	57 lb. 10 oz.	58 lb.
Weight of condenser	1 lb. 4 oz.	
Water in system	7½ gal.	7½ gal.
Capacity of radiator	6.31 gal.	3.5 gal.
Total free air area (core plus a strip .15 in. thick around radiator)	133 sq. in.	264.7 sq. in.
Free air area adjacent to steam-filled portion	59.7 sq. in.	
Free air area adjacent to water-filled portion	73.3 sq. in.	264.7 sq. in.
Total cooling surface	7,986 sq. in.	19,564 sq. in.
Total direct cooling surface	7,986 sq. in.	10,284 sq. in.
Direct cooling surface in contact with steam	3,971 sq. in.	
Direct cooling surface in contact with water	4,015 sq. in.	10,284 sq. in.
Indirect cooling surface		9,280 sq. in.
Total combined cross section of water's path through radiator	2.5 sq. in.	9.6 sq. in.
Length of water's path through radiator	313 in.	40 in.

In the Oriole installation the radiator is located above and behind the engine in an exceedingly strong slipstream, and only a very high blast velocity through the core, combined with a high temperature rise of the cooling air can account for the Lonergan system cooling the engine satisfactorily with such a small free air area and cooling surface.

The original radiator is of the straight ribbon, square cell type, the core being composed of double vertical plates between which the water flows, and horizontal plate or ribbons which act as an indirect cooling surface. The appearance is that of a true cellular radiator with square cells. A slanting baffle in the top tank prevents the water from short circuiting through the center in a hot streak. The radiator had had only 2 hr. 10 min. service, and the passages were clean and free. Its performance is no reflection on its merit as a radiator of its type. To prevent excessive head resistance it had evidently not been designed to permit a long run wide open on the ground.

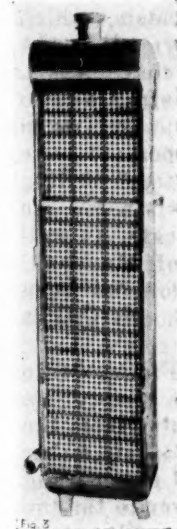


Fig. 3—Lonergan radiator successfully used in tests on aircraft as described in text

The free passages of the Lonergan radiator are believed to render negligible any frictional drag due to the presence of steam, and the top of the radiator can act as a condenser without interfering with the water circulation. The steam which goes over to the auxiliary condenser is returned, with very little loss. Thus the cooling medium is retained and circulation is maintained at high temperatures which are supposed to make for more efficient engine operation than those attainable by unevaporated cooling systems.

For car operation, this condenser had been made quite small and contained few air passages, as it could always be depended on to return the water it contained when some uneven condition of driving increased the air speed through the cooling system or diminished the amount of heat given off by the engine. During a glide, an airplane engine will keep warm for some time on account of the high temperature at which it has been running.

Pump Is Unnecessary

The operation of the Lonergan system seems to show that a positive gear or plunger pump is not necessary to provide circulation in an evaporative cooling system, and that some sort of circulation can be maintained even without a pump. It is possible that the difference in density between the mixture of hot water and steam in the water jackets and the water only in the radiator produces a highly effective thermosyphon.

Whether the steam bubbles produced in the water jackets are large or small is a matter of conjecture, but the radiator installed on the Oriole had a sight feed glass in the outlet line from the engine and the water appeared to carry a mass of tiny, rapidly moving bubbles.

A number of interesting tests on the Lonergan cooling system are planned by the Wallace Bros. Aero Co., who are installing it on several ships. The radiator is made by the Lonergan Automotive Radiator Estate.

FRIEDRICH NEUMANN'S SUCCESSORS, INC., is the correct name of the concern manufacturing the drill grinder described in *AUTOMOTIVE INDUSTRIES* of Aug. 16. The description gave the name incorrectly as Friedrich Neumann's Sons, Inc.

45 Per Cent of Car Dealers Handle Automotive Supplies

Proportion of Ford retailers selling equipment is 58 per cent as against 41 per cent for all others. Vehicle builders can benefit from increased accessory sales. Wide market is still to be developed. Educational efforts should be continued.

ONLY about 45 per cent of all passenger car dealers handle automotive accessories and supplies, according to a survey recently made by the Class Journal Co. Two conclusions can be drawn from this fact:

1. The automotive equipment manufacturer still has a huge market that has not yet been filled. Every car dealer is a logical medium for the distribution of accessories.
2. The passenger car manufacturer has an opportunity to do a real service for his dealers by encouraging them to handle supplementary automotive lines. The dealer who sells equipment and accessories has profit-making merchandise to dispose of at all times, whether the demand for cars be good or bad. His business becomes more stable and he becomes a better car dealer.

Dealers do not seem to have visualized fully the possibility of making money, boosting car sales, and getting themselves into sound financial condition by selling accessory items. Equipment manufacturers, through the A. E. A., have carried on a vigorous educational campaign for several years, and the present situation indicates the need for a continuance of the work.

Encourage Accessory Sales

Car manufacturers can help these efforts along materially by taking a favorable attitude toward them. The vehicle builder has sometimes frowned upon any desire his dealer might have to sell various lines of automotive equipment because of the fear that capital so invested would make it impossible for the dealer to finance a sufficient stock of cars.

This fear has not been realized in practice to any great extent. The retailer who sells other automotive lines is likely to have more capital at the end of ten years than the one who doesn't.

Ford dealers always have been required to finance a full stock of cars, trucks and tractors. Relatively speaking, their burdens in this respect are as heavy as those of any other dealers, and a good bit heavier than many. Yet 58 per cent of all the Ford dealers handle accessories and automotive supplies, as against 41 per cent of all other dealers.

Ford Dealers Lead

Comparison of Ford dealers to all others as regards the handling of accessories is interesting because Ford retailers have been conspicuously successful in a financial way.

While 58 per cent of all Ford dealers sell supplies, the percentage falls below 50 in only 6 States. In 7 States, 70 or more per cent of the Ford representatives merchandise equipment. In the District of Columbia, 8 out of the 9 Ford retailers handle automotive supplies, while in Idaho the percentage runs up to 78.

The figures for all other dealers show quite a contrast to the Ford summary. While Ford drops below 50 per cent in only 6 States, all other dealers go above 50 per cent in only 5 instances. In New Hampshire, 63 per cent of the dealers, exclusive of Ford's, handle supplies. The next highest State is Wisconsin, with 57 per cent.

The average percentages of comparison between Ford and all other dealers do not hold good exactly, of course, in every State, but there is a marked similarity. Study of the accompanying table brings out the following facts:



A greater percentage of Ford dealers than of all other dealers handle supplies in every State except Mississippi, Montana and Nevada. The percentages are very nearly even in the first two of these three.

The average car dealer who sells automotive supplies carries a stock of about \$4,300 according to statements made by 179 non-Ford dealers. The average stock carried by Ford dealers who sell equipment is just a little over \$5,000, according to replies from 128 establishments. Following are data compiled from answers to a questionnaire sent in by 128 Ford dealers, 179 dealers for other cars, and 130 garages, repair shops and supply stores not operating as car agencies:

Ford Dealers

Total stock	\$648,952.33
Average per dealer	5,069.94
Ford stock	561,347.05
Average per dealer	4,385.52
Non-Ford stock	87,605.28
Average per dealer	684.42

Non-Ford Dealers

Total stock	\$763,683.23
Average per dealer	4,266.39
Ford stock	97,964.57
Average per dealer	547.29
Non-Ford stock	665,718.66
Average per dealer	3,719.10

Garages and Repair Shops

Total stock	\$730,015.00
Average per shop	5,615.50
Ford stock	339,710.00
Average per shop	2,613.15
Non-Ford stock	390,305.00
Average per shop	3,002.35

The three tables give an excellent check on one another. Ford dealers handle about twice as much Ford stock on the average as do other retailers, while other dealers on the average have about six times as much general stock as have the Ford retailers. This condition is logical in view of the relative value of the units involved and the

DEALERS HANDLING AUTOMOTIVE SUPPLIES

	Total All Dealers	Total No. Ford Dealers	Total No. Other Dealers	Total No. Ford Dealers Selling Supl.	% of Ford Dealers Sell- ing Supl.	Total No. Other Dealers Selling Supl.	% of Other Dealers Sell- ing Supl.
Alabama	318	88	230	47	48	80	35
Arizona	174	39	135	20	51	42	31
Arkansas	288	95	193	48	56	70	36
California	2,599	407	2,192	206	51	519	24
Colorado	511	114	397	71	62	191	48
Connecticut	582	62	520	33	53	150	29
Distriet of Columbia	95	9	86	8	89	16	19
Delaware	78	17	61	12	70	22	36
Florida	440	96	344	53	55	137	40
Georgia	647	174	473	103	59	146	31
Idaho	244	67	177	52	78	87	49
Illinois	2,696	496	2,200	349	70	982	45
Indiana	1,303	265	1,038	176	67	478	47
Iowa	1,803	468	1,335	302	65	653	49
Kansas	1,103	268	835	161	60	359	43
Kentucky	547	115	432	73	63	167	39
Louisiana	232	67	165	38	57	66	40
Maine	415	69	346	46	66	126	27
Maryland	463	84	379	44	52	137	36
Massachusetts	1,169	159	1,010	105	61	438	43
Michigan	1,450	331	1,119	174	53	441	40
Minnesota	1,428	318	1,109	140	44	304	28
Mississippi	229	90	139	34	38	53	38
Missouri	1,025	257	768	131	51	337	44
Montana	274	88	186	40	45	88	47
Nebraska	877	255	622	131	52	233	39
Nevada	83	32	51	12	34	22	43
New Hampshire	195	44	151	29	66	95	63
New Jersey	1,065	169	896	110	65	390	44
New Mexico	128	38	60	19	50	37	41
New York	2,878	509	2,369	325	64	1,039	44
North Carolina	630	140	490	93	66	238	48
North Dakota	528	180	348	98	55	149	43
Ohio	2,230	432	1,798	280	64	909	51
Oklahoma	770	221	549	107	49	214	39
Oregon	423	97	326	50	52	114	35
Pennsylvania	2,903	585	2,318	309	53	1,134	49
Rhode Island	153	15	138	10	67	78	56
South Carolina	378	80	298	48	60	89	30
South Dakota	663	160	503	105	66	212	42
Tennessee	417	104	313	70	67	108	35
Texas	1,379	415	964	217	52	372	39
Utah	149	40	109	20	50	29	27
Virginia	571	121	450	68	56	178	40
Vermont	209	55	154	30	60	65	42
Washington	634	141	493	89	63	187	38
West Virginia	526	72	454	53	74	189	42
Wisconsin	1,815	371	1,444	267	72	814	57
Wyoming	123	33	90	23	70	46	51
Totals	39,840	8,552	31,157	5,029		13,080	

number of vehicles of various types in operation. The garage and repair shop average stock is nearly equally divided between Ford and non-Ford stock, with the latter in the lead by about 5 per cent.

Business done by various dealers differs considerably, of course, but the general averages indicate clearly the possibilities for profit in the sale of accessories and equipment. If a dealer can turn over his stock five times a year, and thousands of able automotive retailers are doing just that, he will do a gross annual supply business of something between \$60,000 and \$100,000 a year, figuring on the basis

of the tables just quoted for an average dealer. Data of this kind are so approximate as to be of little practical value, but are quoted to bring out clearly the huge scope of the supply business.

With only 45 per cent of all passenger car dealers selling automotive supplies in addition to their vehicle lines, it is evident that the real accessory market has scarcely been scratched. If the proportion of dealers handling goods of this kind can be increased, benefits will accrue to the passenger car builder as well as to his dealers and the automotive equipment manufacturer.

British War Department Modifies 1½ Ton Truck Specification

SINCE the early part of August, when it was announced that the British War Department had accepted the 1½-ton chassis submitted by four makers as being in accordance with the tentative specification issued last year (See AUTOMOTIVE INDUSTRIES of Aug. 17, 1922), revised specifications for these trucks have been issued.

The principal modification is the raising of the maximum chassis weight from 3250 lb. to 3700 lb., and the reason behind this is the reluctance of British makers to put into production a type of chassis suitable only for use with pneumatic tires, as required by the War Department. It is considered that the additional weight will permit the chassis to be used with either solids or pneumatics. Other alterations and additions in the new specification are as follows:

Minimum b.h.p., 28 on 3 hours' run instead of 24 (minimum bore as before, i.e., 100 mm.; no stroke specified). Power at speeds between 600 and 1200 r.p.m. to equal r.p.m. divided by 40. Cylinders to be subjected after machining to hydraulic test at 500 lb. per sq. in. inside barrel and 10 lb. per sq. in. in water jacket without "weeping." Decarbonization of cylinder heads and pistons to be possible by one man with tools supplied in 5 hours from vehicle running to vehicle running. Big end bearings to be capable of removal and replacement in 5 hours from running to running.

The engine lubrication system is not specified, but it is insisted that a large and easily removable filter shall be provided that can be taken away and replaced without loss of oil.

A vertical tube radiator is specified as before but the tubes must have a minimum internal diameter of 5/16 in. instead of 3/8 in. The cooling capacity of the system to be adjustable to suit the climate, and the water temperature shall never exceed 100 deg. Fahr. above that of the atmosphere. The engine hood (bonnet) must not rest upon the radiator but upon a separate frame. Drain cock of a minimum bore of 1/2 in. to be fitted, one that cannot be opened accidentally but is capable of draining all parts of the cooling system. The overflow pipe must have a bore of not less than 1/2 in. and be baffled to prevent loss of water. The radiator and its connection must withstand an internal pressure of 5 lb. per sq. in.

Water Pump and Fan Optional

Originally the specification insisted upon a water pump and fan, but these are now optional with temperature tests instead. The original references to the method of supporting the radiator are also omitted and tests over rough ground are substituted.

Gravity fed fuel was previously optional, but now it is insisted upon, the tank to be provided with a three-way outlet cock to enable 2½ gal. to be kept normally in reserve. The tank must contain at least 15 gal. but must not be made of lead-coated steel. The maximum fuel con-

sumption is to be 1 Imperial gal. per 12 miles or 1 gal. per 18 net ton miles; previously 40 gross ton-miles per gallon was specified.

Multiple disk or leather-faced clutches are now barred and the specification mentions the need for efficient lubrication of the clutch pilot and withdrawal gear. A four-speed gearset is again insisted upon but more latitude is allowed in respect of gear ratios. An odometer is definitely specified, though previously was merely "desirable." Universal joints may be of any generally recognized type, but a tie-rod for the rear axle is now barred. The final drive may be of any type other than chains; previously double helical gears as well as chains were ruled out.

Bearing Specifications

No reservations are made about wheel bearings, though formerly the tapered roller type was held preferable. The hubs must conform with dimensions concerned with War Department wheels.

For military use straight-sided pneumatics are insisted upon, these to be at least 36 x 6 in. at the front and 38 x 7 in. at the rear, but clearance for larger sizes must be provided. Previously a 36-in. diameter back and front was specified with "ample" cross section. Twin pneumatics at the back, formerly acceptable, are now ruled out.

The specified tests are also very similar, and among them is one insisting upon the loaded truck with a body weighing 1100 lb. being capable of maintaining an average of 30 m.p.h. on the road for one hour and 22 m.p.h. for two hours.

Britain to Resume Airship Work

ACTING on the advice of the Imperial Defence and the Imperial Shipping Committee, the British Government, which not so long ago advertised its fleet of lighter-than-air craft for sale, has now decided to resume the development of airships, and has accepted in principle a scheme by which a service to India by six large airships will be set up eventually. The plan referred to is due to Commander Burney and is said to be financially backed by Vickers, Ltd., and the Shell Company.

It is proposed to form an airship company with a capital of 400,000 pounds sterling, one-half of it paid up, while the Government will provide 400,000 pounds. The first work to be undertaken will be the erection of mooring masts, and then the construction of an airship of the rigid type with 5,000,000 cu. ft. capacity will be begun. A speed of 80 m.p.h. and a range of 2500 to 3000 miles are anticipated.

For a weekly service to India three ships will be needed and for a bi-weekly service six. It is estimated that eighteen months will be required for the construction of the first ship, but that thereafter four months will be all that will be required for building additional ships.

Exclusive Electric Service Stations Supported by Equipment Makers

Manufacturers' and maintenance associations hold joint meeting. Both agree that parts should be sold direct to dealers and that registration plan should be encouraged. Standardization committee makes progress. Opinions received from car builders.

By David Beecroft

WILL the sale of spare parts and the servicing of electrical equipment on motor vehicles be handled through motor car dealers, or through independent electric service stations? This is one of the questions most deeply concerning manufacturers of batteries, starting, lighting and ignition equipment. The problem has been under consideration for many years, but has gained special prominence in the past year because of an active campaign which has been carried on by the Automotive Electric Service Association. The efforts of this association, which is comprised of electric service station operators, have been backed by many of the manufacturers of electrical equipment.

The association of manufacturers of electrical equipment, the Automotive Electric Association, includes in its membership makers of starting, lighting and ignition apparatus. This group has given strong moral support to the electric service station movement during the past year, while many of its members have supported the development actively.

A new step was taken last week at the annual summer meeting of the Automotive Electric Association held at Eagles Mere Park, Pa., when a series of joint sessions was held between the A. E. A. members and the service station representatives of the A. E. S. A. Cooperation between these manufacturing and service organizations went further than ever before. Two chief fundamentals were agreed upon:

1—Motor car manufacturers and motor car dealers should turn over the servicing of the electric equipment on motor vehicles to exclusive electric service stations.

2—Electric equipment manufacturers should not sell spare parts to motor car manufacturers who in turn sell

them to their dealers; rather they should sell direct to electric service stations and to the motor car dealers where necessary.

The desire of electrical equipment manufacturers to confine the sale and repair of electrical parts to the electric service station originated in the motor car warranty of the National Automobile Chamber of Commerce. This warranty states explicitly that the 90-day warranty of the car manufacturer does not cover starting, lighting and ignition equipment, or batteries, thus relieving the car dealer of responsibility for service during this 90-day period.

Members of the Automotive Electric Association realized that some other form of organization was needed to give necessary service during the guarantee period. Thus arose the electric service station of the electrical equipment manufacturers.

Cooperation Advocated

Electrical equipment makers reason that some form of cooperation should exist between the car manufacturer and themselves regarding service during the guarantee period, as well as regarding later service. They believe that if the car builders specifically refuse to guarantee the electrical equipment, the latter should not object to the electric service station. Further, they reason, the car manufacturer should ask his distributors and dealers to request every car purchaser to take his vehicle within a specified time to an electric service station to have its electrical equipment registered and given a preliminary inspection, thus making it possible to give the necessary 90-day service in accordance with the terms of the guarantee.

Today the situation is anything but a settled one. The membership of the N. A. C. C. and the A. E. A. have not met and agreed as to a policy to be pursued.

Some individual car manufacturers are urging their dealers to adopt what is known as the registration plan, which operates as follows: When a vehicle is sold the purchaser receives a notification card giving him the name and address of the electric service station in his territory and further advising him to report with his vehicle to that service station in order to register his electrical equipment and secure the service that the electrical manufacturer offers under his guarantee.

Other car makers have taken the opposing view and are urging their dealers to build up adequate electric service departments.

During the past year many makers of electrical equipment have been aggressively selling the electric service

THE question of flat rate service on electrical repairs caused a wide difference of opinion among members, although a majority seemed to favor some kind of predetermined charge other than the straight flat rate.

One operator, however, who does a large part of the electrical repair and parts business in Canada, has been using the flat rate for some time and declares that it is entirely satisfactory. Many others look more favorably on the maximum estimate plan, which is being used successfully in many places.

station policy to their motor car customers and considerable progress has been made. While the membership of the Automotive Electric Association has been fairly active in this way, members of the Automotive Electric Service Association, scattered throughout the country, have been much more active. The service association has increased its membership 18 per cent during the past year, bringing the total number of electric service stations up to 2016.

That the A. E. S. A. is particularly aggressive was indicated by the representation of the Board of Governors at last week's meeting of the A. E. A. Service representatives came from nearly all of the major centers of the country. Among this group were Ray Thomas, Los Angeles; Gordon Prentice, Seattle; David W. Burke, Detroit; R. H. Bechthol, Cleveland; Arthur Jones, Chicago; Adolph Wagner, Indianapolis; H. F. Bush, Philadelphia; P. V. Durham, New York, and many others.

These electrical parts jobbers and repairmen came with no uncertain idea as to their wants, and their case was well championed by such men as President Burke, Secretary Durham and Messrs. Thomas, Prentice, Stevens, Jones and others. There is not 100 per cent agreement between the A. E. S. A. and the A. E. A., but they are agreed on the two essentials outlined previously—the servicing of electrical equipment through electric service stations and the selling of electrical repair parts direct from the electrical manufacturer.

Definite Plan Outlined

The opinion of the electrical manufacturers on this subject is clearly set forth in a plan drafted by the Service Committee and approved by the Board of Governors. The four fundamentals of this plan are explicitly stated in the following paragraphs:

1—The present plan of servicing automotive electric equipment primarily through equipment manufacturers' field organizations is sound and fundamentally correct. These field organizations can be extended and made more efficient by the sincere support of motor car manufacturers and their dealers, and it is only in this sincere support and cooperation that the cost of service can be held to the lowest level and the quality of service maintained at the highest level.

2—That every possible effort should be made by electric equipment manufacturers to acquaint motor car manufacturers in detail with the excellence of the present facilities, that motor car manufacturers should do everything they can to influence their dealer organizations to support the specialized service stations through the purchase of repair parts and by referring all owners to such service stations, for initial inspection of the electric equipment following the purchase for all electric maintenance work thereafter.

3—That electric equipment manufacturers should prevail on motor car makers to amplify their instructions to car owners to include a recommendation that the car owner should go to the authorized service station of the manufacturer of the electric equipment on the car for the electric service.

4—That every effort should be made to persuade motor car manufacturers to relinquish the jobbing and repair of replacement parts for electric equipment.

There is no doubt of the meaning conveyed by these statements. The plan was forced on the electrical manufacturers by the failure of car builders to guarantee electrical equipment on the vehicle.

While the electrical manufacturers may not have backed these four fundamentals as strenuously as possible, any lack on their part has been more than made up by the aggressive work of the Automotive Electric Service Association. The members of this association were on the firing line. They had to meet the servicing problem

THE Standards Committee of the Automotive Electric Association made an investigation to find out why car manufacturers fail to use certain dimensional standards in connection with electrical equipment in so many instances. The survey covered such installations as Franklin, Reo, Hupmobile, Chandler, Overland, Star, Maxwell, Nash, Velie and Studebaker.

Passenger car engineers assigned various reasons for not using these particular dimensional standards, chief of which is their ability to reduce manufacturing costs considerably by the use of more compact designs.

directly. They felt a definitely unfavorable reaction when the motor car dealer sent a customer to them during the guarantee period and then attempted to give service on the electric equipment after the guarantee period was over. They had to do the work of selling the registration plan to the car dealer.

P. J. Durham, secretary of A. E. S. A., presented the electric service station view to the electric manufacturers at the convention, and showed what his association has done in the past year. The A. E. S. A. does not say that the entire country is adequately provided with electric service stations, or that all electric service stations are 100 per cent efficient, but it does believe that its efforts have helped materially to keep electric service to the forefront during the past 4 or 5 years.

The major reason advanced for the existence of the electric service station, in addition to its necessity by virtue of the guarantee situation, is that it provides adequate electrical testing equipment which usually is lacking in the average repair department of the motor car dealer. Durham contends that the repair of the electrical equipment calls for an unusually high standard of workmanship, so high that motor car dealers, except those in large cities, cannot afford to invest in the necessary equipment or to engage the necessary help.

Some of the large electrical service station distributors have 199 or more sub-stations, or authorized dealers. These sub-stations employ men who have been trained under the electrical jobber, or service station, in the repair of all makes of electrical apparatus. They carry stocks of parts ranging from \$600 to \$15,000, and are manned according to the finances of the owner or the requirements of the territory.

Sub-stations Cause Trouble

It is with these sub-service stations that the A. E. S. A. distributors and jobbers have had the most trouble. The electric service station man finds it hard to make money unless he can secure complete cooperation from the car dealer and thereby take care of all the electrical repair work. Usually this assistance is not forthcoming. In slack seasons the motor car dealer in the small town does a great deal of his own repair work, whereas in seasons when motor cars sell well he devotes his energies to selling cars and lets the electric service station handle the repairs.

The small town electric service station is hampered also by the fact that not all electric equipment manufacturers will agree to have the same service station represent them; further, a motor car dealer is barred from receiving the appointment, or becoming an electric service station. In

many small towns the enterprising motor car dealer, well organized for service, would be the logical man to conduct the electric service station, but this is impossible, as a rival car dealer would not agree to it. The result is that the electric service station, if it is to exist at all, must be separate from the vehicle sales organization. The natural conclusion is that, if it must be separate and if the several car dealers cannot support an electrical department, then the electrical repair business of such a place should, by mutual agreement, be turned over to the electric service station.

Conflicting trade practices have made it difficult for the

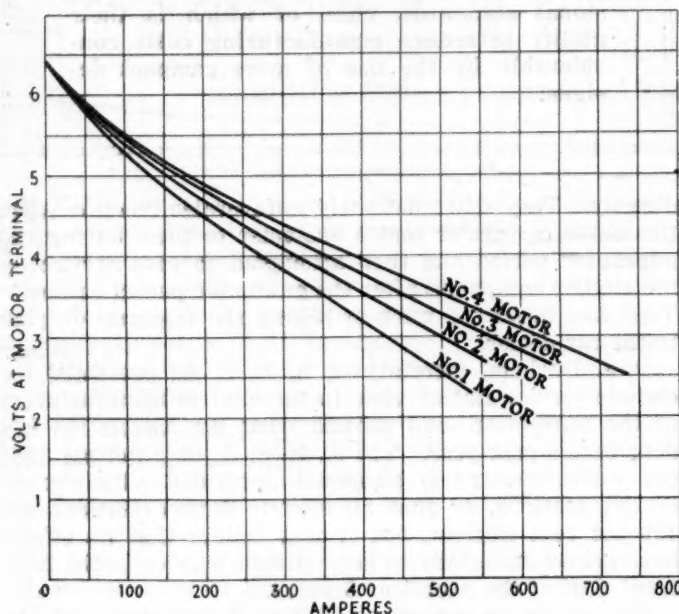


Fig. 1—Curve showing motor terminal voltage to be used in conducting tests on starting motors at 80 degrees Fahr., to obtain performance equivalent to starting motors being tested with storage batteries at 10 degrees Fahr.

electric service station to profit from the sale of repair parts. Some motor car manufacturers have been selling electrical equipment spares to their small town dealers at a greater discount than that at which the electric service station in the same town can purchase them. This practice has brought about acute difficulty for the electric service man because he makes little money on the labor connected with the repair and replacement work and depends largely on the sale of parts for profit.

It is this phase of electric service that the electric equipment manufacturer has been particularly interested in the past year. One large equipment manufacturer literally is controlling the entire sale of spare parts, and has two of the largest production car makers working with him on this policy. Spare parts for electrical equipment are sold direct from the manufacturer to the service station or the car dealer. The automobile makers do not handle any of them. This constitutes quite a pronounced change in policy.

Car Builders Change Policy

Other car manufacturers who formerly recorded electrical equipment parts on their price lists have discontinued this practice.

Still other car manufacturers who in the past have sold electrical spares to their dealers at big discounts have agreed to discontinue the policy, so that the electric service station may be on a par with the local dealer so far as parts prices are concerned.

In an effort to settle definitely the status of the electric

service station, and to find out how car makers regard it, the A. E. S. A. some months ago addressed a letter to the membership of the N. A. C. C. Many of the replies were read to the convention by Secretary Durham. They showed that a great many of the N. A. C. C. members favor the registration plan. A majority favor the electric service station and a few offer constructive criticisms of the present station plan. Only one manufacturer refuses to recognize a place for the electric service station, declaring that automobile manufacturers should take care of all electrical service through their own distributors and dealers. The inference to be drawn from these letters is that car builders should support the electric associations whose activities have been made necessary as a result of the failure of vehicle manufacturers to guarantee electrical parts.

The A. E. S. A. came well equipped to present their case quite conclusively to the electrical manufacturers. One of their members, George J. Beattie, president, Auto Electric Service, Ltd., Toronto, explained that his company has an agreement with the Canadian car manufacturers whereby it handles the complete electrical service for the entire Dominion of Canada. It has a chain of service stations beginning with Halifax and including St. Johns, N. B., Montreal, Ottawa, Toronto, Winnipeg, Regina, Calgary, Medicine Hat, Edmonton, Vancouver and Victoria, with sub-stations in smaller cities and towns.

Canadian Solution Explained

Canada, with its 500,000 motor cars scattered over a very wide area, has a harder electric service problem than has the United States. Two years ago the Canadian motor car manufacturers requested Beattie to investigate the electric service situation and recommend what could be done.

The plan worked out by Beattie was based on the fact that if the car manufacturers would turn electrical repair work over to his company he would organize and give the necessary service. The car builders accepted this plan, with the result that there is now one electric service station to every 20,000 cars in the country. These stations are distributed in accordance with motor car registration as far as possible.

One group of car manufacturers recommend in their catalogs that the service of electrical parts be given over to the Auto Electric Service Co., Ltd. Where the manufacturers do not do this, Beattie attempts to sell the dealer on the electric service station idea by giving him better service than he ever hoped for. These efforts have been successful thus far and now car dealers turn their electrical service over to him.

Beattie has traveling men covering the country from Halifax to Victoria several times a year and is constantly adding service stations as required.

This Canadian system, judging from Beattie's report, is working out satisfactorily and is gradually getting the co-operation of the car dealer. Beattie carries out his work through the registration plan. It must not be inferred, however, that all car dealers have given up their electric service departments.

The difficulty of getting all electric manufacturers to agree on a common service station would be an obstacle to the adoption of this plan in the United States. G. Brewer Griffin, general manager, Automotive Department of Westinghouse, favors the plan of having a single electric service station carry supplies of all makes and handle the service in the same town.

A. H. Bartsch, general sales manager, American Bosch Magneto Corp., has been a strong advocate of the registration plan for three or four years. His company started it several years ago and has conducted a model service de-

partment in Springfield, Mass., in order to study the problem more thoroughly. It is essential that the owner or manager of the small town electric service station be a merchant as well as a mechanic. Too many of these depots have been in the hands of a mechanic who did not know how to get business. Bartsch recognizes that a large percentage of the electric service stations today in smaller places are not up to the standard. His company has furnished the necessary registration cards to automobile dealers in towns where they have their own service stations or branches.

O. W. Smith, director of branches for Splittorf Electric Co., which company has 380 electric service stations, favors the Beattie registration plan. Smith thinks that 75 per cent of electric service stations are satisfactory.

Dual Warranty Proposed

With the motor car manufacturer refusing to guarantee the electrical equipment and with the electrical equipment manufacturer having to organize to give service under his guarantee, it would appear fair to give the car purchaser a dual certificate of warranty, one-half of which would cover the guarantee of the motor car manufacturer and the other half that of the electrical equipment maker. Such a plan would at least present the matter squarely to the car owner. The objective should be to make it as easy and as simple as possible for the car owner to get that service to which he is entitled during the guarantee period, and to get the best service at the lowest cost, with the least expenditure of effort after the expiration of the guarantee periods.

Quite general objection was raised to the words "flat rate" as applied to service on electric parts. This subject came before the convention when Earl Turner, general manager of the A. E. A. and chairman of the Service Committee, expressed the views of his committee. The words "flat rate" are misleading, the committee believes, and the plan is considered unfair not only by some of the largest electric service station jobbers but also by several of the equipment manufacturers. Ray Thomas of the Electric Equipment Co., Los Angeles, declared that with him the flat rate, which had been tried on the Pacific Coast, had not proved satisfactory. One year ago Thomas put into operation a maximum estimate plan. He has been well satisfied with it and uses it in connection with 60 per cent of his company's repair work.

Beattie, on the other hand, has used the flat rate for 1½ years and declares that it is 100 per cent satisfactory. All his service stations must sell the customer the flat rate plan and state price before work is started on the job. Beattie employs a rather widely classified flat rate plan, having a different charge, not only for various cars, but also for different models of the same cars.

Reinhart Bros., automobile jobbers, Minneapolis, who have a large electric service department at their headquarters, with electric service stations throughout the territory, has found the flat rate impractical, according to Service Manager Stevens. This company now uses the estimate plan, by which the customer is given a price on every job before the repair work is started. Stevens criticised the flat rate system as not being fair to the customer and also as being quite complicated to handle throughout a service station organization.

P. J. Durham, who operates an electric jobber service station in New York, with many sub-stations in the metropolitan area, uses what he describes as a predetermined charge system. He does not favor a flat rate. Under Durham's system the customer knows what the charge will be before the work is started.

David Burke, a large electric service station jobber of

Detroit, uses the estimated cost plan and finds it satisfactory.

There is no question but that the members of the A. E. A. and also the A. E. S. A. favor something in the nature of a predetermined charge basis of repairs, rather than a blanket form of flat rate. Griffin of Westinghouse is a strong advocate of the estimate plan and is convinced that the members of the A. E. S. A. should work out such a plan themselves instead of relying on the A. E. A. to develop it.

One of the hard tasks that the Automotive Equipment Association has had to face in the last few years is that of securing closer cooperation among the battery manufacturers. This work was started by President A. D. T. Libby at the summer meeting last year, but the progress has not been as marked as desired. The Battery Committee of the A. E. A. has drafted a program for this year, however, covering two important subjects.

The first relates to the problem of elevating the general plane of battery service stations, their methods of doing business, and of improving the class of men in the business and of inducing a higher caliber of men into the field.

The second relates to the all-important question of giving free battery service. The committee is to consider whether or not it is advisable to entirely eliminate free battery service and, if so, to determine how best this can be done. It is possible that some standards of the service a battery station should give for a nominal charge will be defined so that there will be a uniformity of battery service in different sections if not throughout the entire country.

That battery makers have been giving much consideration to the question of free service is indicated by the fact

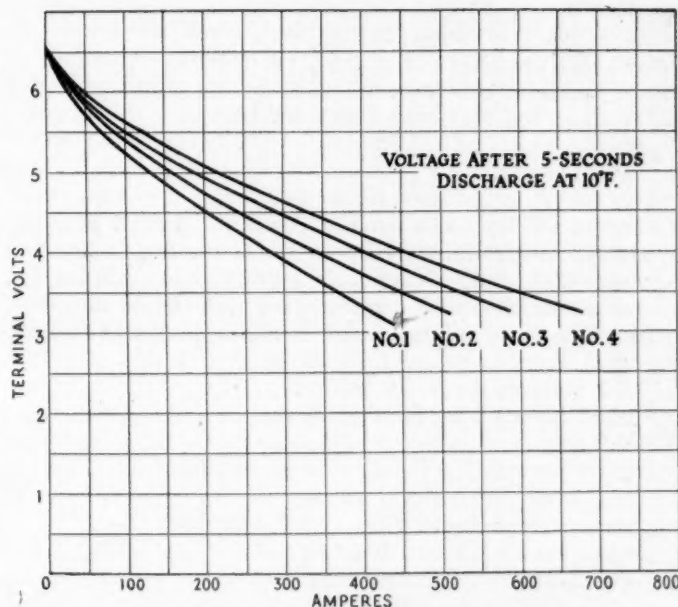


Fig. 2—Automotive Electric Association standard voltage-ampere curves from which the curves in Fig. 1 were obtained. These curves do not refer to battery ampere-hour ratings or capacities, which must be determined to meet conditions other than engine starting on individual installations

that Exide has recommended to its dealers that they charge for all service, such as water replenishment, etc.

The Battery Committee is scheduled to meet approximately every 90 days, the meeting dates to coincide with the Board of Governors of the A. E. A., and considerable progress is expected during the coming year.

The standardization work of the A. E. A. started actively more than a year ago, under the chairmanship of Joseph Bijur, has been carried on with unusual activity by Thomas Lee, present chairman of the Standards Committee and chief engineer Northern Electric Co. The Board of Governors approved the four sizes of starting motors which the Standards Committee has been working on since the first of the year, these standards following quite closely on the approval of four standards for generators last January. The four starting motor standards were part of the original standards plan.

Starting motors have been classified according to performance, and the four sizes approved by the A. E. A. will be known as Nos. 1, 2, 3 and 4 and will cover a high percentage of passenger car applications.

These four sizes of starting motors should link up quite closely with four sizes of storage batteries that are in general use and which take care of 85 per cent of the passenger cars being manufactured this year.

Standards Work Progresses

In order to reduce the number of starting motors to four, the Standards Committee has adopted four standard motor voltage curves, shown in Fig. 1. This represents the voltage at the terminals of the Nos. 1, 2, 3, and 4 starting motors when used with the Nos. 1, 2, 3 and 4 batteries respectively at a temperature of 10 deg. Fahr.

In determining the standard motor voltage curve line a drop of 1.12 volts per hundred amperes is assumed, which corresponds with good practice. The resistance of the motor windings as at 10 deg. Fahr. is assumed because it is impractical to test starting motors at this temperature, so that it is necessary to make an allowance for the starting motor being tested at the usual room temperature of 80 deg.

As a result of these assumptions, when the respective motors are tested at the usual room temperature of 80 deg. Fahr. at the voltage taken from the standard motor volt curves, the resulting performance will, it is said, approximate that of the combination of battery and motor at 10 deg. Fahr.

The following ratings for a 6-volt motor are based on a gear reduction between the cranking pinion and the flywheel of approximately 10 to 1. If the gear reduction between these two elements is substantially different, a proper allowance in the performance test should be made.

The following are the brief specifications of the four approved starting motors:

- No. 1 motor with No. 1 battery—
Locked torque 9 lb.-ft., 0.43 at 400 r. p. m.
- No. 2 motor with No. 2 battery—
Locked torque 12.5 lb.-ft., 0.60 at 400 r.p.m.
- No. 3 motor with No. 3 battery—
Locked torque 17 lb.-ft., 0.85 at 400 r.p.m.
- No. 4 motor with No. 4 battery—
Locked torque 24 lb.-ft., 1 at 400 r.p.m.

Voltages lower than those specified for a given current should not be used. In case a higher voltage is used, there will be a corresponding increase in performance.

Opinions from Car Engineers

The Standards Committee has experienced a great deal of difficulty in what might be described as dimensional standardization, and to determine why this work is so difficult, seven of the equipment manufacturer engineers were requested to make an investigation and show why existing S. A. E. dimensional standards were not in use. The investigations covered such installations as Franklin, Reo, Chandler, Overland, Star, Maxwell, Hupmobile, Nash, Velie and Studebaker. The report of the investigating engineers indicated that in the majority of cases

the failure to use the dimensional standards was due to the reduced manufacturing cost made possible by more compact designs by the car companies. In several cases the amount of machine work was considerably reduced by the more compact mounting designs. With some companies the present designs antedate the S. A. E. standards. In other instances the development of smaller engines, with the crankshaft and camshaft closer together, has called for more compact designs which are not only cheaper to install but require small quantities of materials.

This work of dimensional standardization will be carried on during the current year and several other standard activities will be taken up.

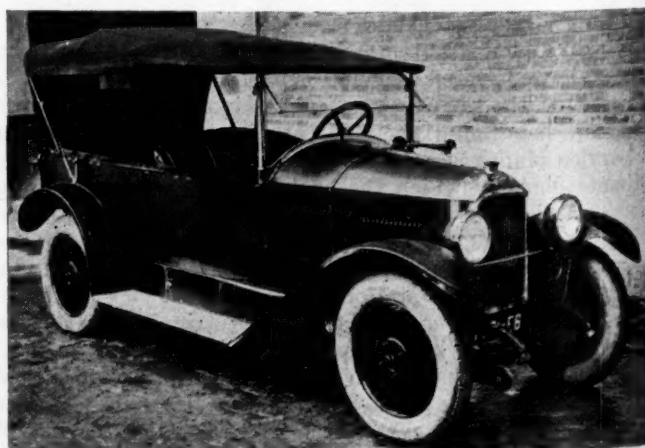
Chairman Lee has investigated the question of developing a standard method of testing ignition apparatus. At present no one seems to know what constitutes a satisfactory practical test.

Many French Car Builders Will Adopt Low Pressure Tires

TWO sizes of large section low pressure tires have been placed on the market by the Michelin Co. The respective dimensions are 715 by 115 and 730 by 130 mm., and they are intended to replace 700 by 80 and 710 by 90 mm. sizes. This will meet the requirements of a very large number of French two and four-seater light cars, notably all the popular models built by Citroen, Renault, Mathis, Salmson and Amilcar.

The new tires have received a very favorable reception at the hands of manufacturers and will be adopted at the forthcoming show by Peugeot, Citroen, Mathis and Aries, among others. These tires are clincher bead cord construction. The bead is stiffer and deeper than on the ordinary tires, but the side walls are very much thinner. Recommended pressures are 15 lbs. per sq. in. for the smaller of the two tires, used on two-seater cars, and 18 lb. for the larger tire on four-seater models. These are lower pressures than other makers, who have experimented with large section tires, have considered advisable to adopt.

In bringing out his low pressure tires with clincher bead, it appears to be definitely proved that Michelin has no intention of coming on the French market with straight side tires. His new locking device, consisting of a steel and rubber band mounted inside the casing, is not considered necessary to prevent the low pressure tires coming off or creeping on the rim. This band has been brought out for racing and for high speed cars. Tests have shown that it is much more efficient than safety lugs, and it is claimed to be lighter than the straight side.



Peugeot light car fitted with the new 730 x 130 mm. Michelin low pressure "comfort" tire



The FORUM



Traffic Should Be Spread Over More Streets

Congestion would be relieved materially if all highways were used, Colin Campbell says. Underground parking places needed.

Editor, AUTOMOTIVE INDUSTRIES:

WE have read the excellent article about traffic congestion by Mr. Alvan Macauley, in your August 9 issue, which clearly presents the entire problem and we note that he lays stress principally on the urgent necessity of city planning and the alteration of present city lay-outs. While agreeing fully with him as to the desirability of such remedial measures, it seems obvious that it is too much to expect many of these very expensive alterations in cities, and we must therefore do everything possible to relieve congestion under existing conditions.

Here in Detroit we have intense congestion and numerous accidents. A recent ordinance, requiring all cars to come to a full stop at important intersections, was passed by our council. This immediately reduced the number of crossing collisions and also facilitated traffic.

Other conditions noted by me, suggest further possible remedial measures with the necessary cooperation of the public.

All traffic tends to move on the best known streets, although the resulting congestion may and usually does slow down traffic to an undesirable extent.

The police, with the help of the newspapers, can suggest other means for reaching important sections that will relieve the congestion on the main streets. Indeed, police regulations may be put in force to compel much traffic to move only on certain streets, and all traffic to move one way.

Mr. Macauley's suggestion that paving improvements of secondary streets may relieve congestion on main streets is illustrated in this city.

The big volume of traffic North and South tends to move on Woodward Avenue, Second Boulevard and John R Street. The latter street, however, is interrupted by an industrial plant in the northern part of the city. Traffic on John R Street is then diverted back to Woodward Avenue. It could go the other side of this plant, but the street in back of the plant is not paved. Paving about four squares would solve this difficulty.

The parking problem is very serious.

The writer has already gone on record, advocating that all new office buildings provide underground parking facil-

ities with ramps.

The time has come when we must make the same provisions for automobile traffic as for railroads. Surface cars should be eliminated on all main arteries of travel by the construction of subways. The space gained by the removal of two tracks would be sufficient for three to four lines of automobiles, reduce the street noises, provide more rapid railway transit, promote the spread of home sections and relieve commercial congestion.

In most large cities, subways will cost no more than widening of streets, if the latter implies acquirement and destruction of buildings.

Elevated roadways on double deck streets offer another possible relief of main artery congestion.

It is becoming increasingly evident that the real "saturation point" of the automobile industry is not the buying capacity of the public, which adapts itself to modern requirements, but the capacity of our highways and streets.

Mr. Macauley's suggestion of side doors for large trucks has possibilities, although it would tend to decrease curb parking space.

Another suggestion is the use of fast ton trucks in congested areas instead of the slow moving large trucks which tend to cause traffic congestion.

All slow moving and extra heavy trucks should be routed away from main streets on to secondary streets, paved to carry this heavy freight traffic.

No parking should be permitted on railway streets, so narrow that automobiles cannot pass between street cars and parked automobiles.

Automobile clubs and dealers' associations can also help by advising women shoppers to use selected streets in hours when men drivers are not going to or coming from work.

They could also publish various suggestions for suburban towns to keep this traffic spread away from the most popular routes. Many people drive only on popular roads, because they know of no other drives.

The writer believes that most cities have sufficient street capacity to care for present-day traffic, provided it is spread over enough streets to prevent fruitless and time wasting congestion of main streets.

COLIN CAMPBELL,
General Sales Manager, Chevrolet Motor Co.

"MOST cities have sufficient street capacity to care for present-day traffic, provided it is spread over enough streets to prevent fruitless and time-wasting congestion of main streets.

"The time has come when we must make the same provisions for automobile traffic as for railroads. Surface cars should be eliminated on all main arteries of travel by the construction of subways."

Constructive Sales Methods Develop Belgian Automotive Market

Retail prices, location of distribution points, and advertising methods are important factors. Belgian factories have capacity of about 6000 cars a year. American manufacturers can help agents in preparation of advertising. Future prospects bright.

By L. H. Schultz

Formerly of Automotive Division, Bureau of Foreign and Domestic Commerce

THE growth of automotive business in Belgium has been great in the last five years. The number of cars and trucks in use has increased from about 19,000 in 1919 to approximately 55,000 at the present time. The market for other automotive products has grown in proportion.

American manufacturers have had a good share of Belgian trade, but their business can be built up still further. This article tells a few specific ways of making more Belgian sales, presents some facts about the market, and gives some constructive comments based on personal observations of the author within recent months.

PPRICE, number and location of distribution points, and advertising methods are three chief factors to be considered in selling automotive products to Belgium today. The use of cars and trucks has increased materially during recent years and the general progress of automotive transportation has been rapid. This has created an atmosphere favorable to future development. Constructive effort along the lines mentioned will increase the sales of any given group of manufacturers.

Low priced lines are sold most widely in Belgium, as in other countries. Cars retailing for less than 30,000 francs (with the franc at 19 or 20 to the dollar) are in greatest demand. Ford was selling well at 10,400 francs around the first of July. About the same time, the 10 h.p. Citroen retailed at 19,000 francs and the 5 h.p. Citroen at 16,400 francs.

Retail Prices

The character of price competition in Belgium can best be shown by the following list of approximate retail selling prices about July 1, when exchange ran about 23 francs to the dollar:

	Francs
Overland	15,700
Chevrolet	15,200
Star	14,500
Dodge	24,500
Renault, 10 hp.	24,000
Fiat, 10-12 hp., 4 cyl.	21,750
Oakland	26,500
Essex	25,500
Hupmobile	26,500
Studebaker light 6	26,500
Buick 6.	33,500
Willys-Knight	36,500
Hudson	35,000
Benz, 13 hp., 4 cyl. tour.	37,000
Cleveland	26,500
Studebaker Big 6	38,500
Paige	59,500
Cadillac	68,000
Lincoln	84,000

	Francs
Fiat, 6-24 hp.	41,250
Lancia, 8 cyl. chassis, f.o.b. Turin.	65,000
Panhard, 24-25 hp.	47,000
Benz, 40 hp. 6 cyl.	70,000
Mercedes, 6/25 hp.	62,000
Mercedes, 16/45 hp.	82,000
Daimler, 16 hp.	85,000
Daimler, 21 hp.	106,000
Daimler, 30 hp.	135,000
Hispano-Suiza, 32 hp.	132,000

Competition from local manufacturers is not especially severe except in a few lines.

Belgian factories have capacity for building about 6000 passenger cars each year, but have not actually made that many vehicles for some time.

They built few cars in 1919, about 2000 in 1920, and about 5000 in 1921 and 1922. Only fairly high priced vehicles are built locally, although there is a desire on the part of certain makers to produce a low priced model. Production capacity of Belgian manufacturers is distributed approximately as follows:

Minerva	2000
Metallurgique	1000
Fabrique National.	1200
All others.	1800

The best selling months in Belgium are April, May, June and July. The touring season starts in April and ends in September.

Whole Country for One Distributor

One distributor has all of Belgium for his territory in the case of every line. He is always located in Brussels or Antwerp, usually the former. The points at which dealer representation is needed to cover the country fully are pretty generally recognized, although some makes of car have far better distribution facilities than others at the present time.

The average organization has between 12 and 20

dealers or sub-dealers, although some of the stronger American manufacturers have as high as 40 retail representatives throughout the country. Sometimes it is profitable to have a dealer even in towns of less than 5000 population, as in Huy-a, which is a gathering place for millionaires.

Every distributor is trying to get good representation in the following places, although Ford is the only one who has fully succeeded in doing so thus far:

Brussels	Courtirai
Antwerp	Ostend
Ghent	Jumet
Liege	Mons
Verviers	Seraing
Charleroi	Namur
Berchem	St. Ghislaem
Borgerhout	Huy
Lierre	Louvain
Malines	Champlon
Alost	St. Trond
St. Nichols	Roulers
Bruges	

While Ford is the only make represented in all of these cities, some other car is sold in nearly every one. Each town in the list has 25,000 or more inhabitants and offers good possibilities for automotive business.

Sales Growth Rapid

Sales development has been so rapid in the past four years that distributors are finding it difficult to get enough dealers with sufficient experience and capital to enable them to handle a line properly. It has become a common practice to send a demonstrator on consignment to representatives in some of the smaller towns. This custom works fairly well in Belgium, since the small size of the country makes it possible to take care of service from central points without much difficulty.

Belgian distributors and dealers do not understand the value of advertising and make but poor use of what little space they do buy. Most of them believe that advertising doesn't pay and, consequently, pay little attention to it. The average distributor will buy two or three inches of space in a newspaper, insert the name and price of his car, and then condemn advertising because he doesn't get any results.

A few distributors have visualized the possibilities of advertising and they are cashing in on their foresight. One Frenchman, for example, who is handling a prominent American car together with three other lines, spent over 300,000 francs in advertising one line during 1922 and has made an even larger appropriation for similar publicity this year. He is thoroughly satisfied with the results of his efforts, which have usually taken the form of half or full pages in good newspapers. The volume of his sales bear out his contention that the advertising has paid.

Advertising Help Needed

American manufacturers might help their Belgian agents materially by showing them how to make good use of advertising space and how to present a message through this medium. Space is cheap, and a little money may produce relatively good results. Almost any daily paper in Brussels or Antwerp has a national circulation, while the local automobile trade press can be used to advantage.

Two unfavorable factors which may affect automotive sales are present in the Belgian economic situation. Exchange has been unsatisfactory for some time and a new tariff law is contemplated which will inflict heavy duties on automotive products. Fluctuating exchange tends to make buying sporadic, but a tremendous business has been done despite this fact in recent years.

The tariff law referred to was defeated at the last session of the Belgian legislature, being a part of a commercial treaty with France which was not ratified. France has already ratified the treaty, however, and there is every indication that it will be approved by Belgium and become effective about the first of next year.

If this is the case, American manufacturers will do well to get as many cars as possible into Belgium before the revised tariff takes effect, since the new rates will be much higher than those now in force.

Horsepower Tax Basis

Taxation on horsepower rating is another feature of the Belgian situation unfavorable to American car builders. Under the existing formula, American vehicles pay much more than European makes.

Gasoline is very cheap in Belgium at present and does not constitute an important factor in the sales situation.

Many Belgians delight in bright colored, strikingly designed bodies. Consequently, a local body building business of some importance has grown up, although the American sport models, which have been so numerous in the past year, are finding an excellent market. Gray, dark blue, maroon, and khaki are favorite colors.

The low-priced closed car should find many buyers in Belgium, because the climate is such as to demand weather protection very frequently. In most parts of the country it rains something like 268 days a year, but the rain usually is followed by bright sunshine. Closed cars fit admirably into such conditions, but their relatively high price has limited their sales thus far. Roadsters are not very popular.

Light delivery trucks are being sold in increasing numbers every year. The market for heavy trucks is slow because of war stocks which were left over in Belgium as in other European countries. Seventy-five per cent of the heavy trucks sold during the last four years, it is estimated, have come from these war stocks.

Ford and Citroen are selling well, while leaders in the sale of heavier models include Renault (French), Auto-Traction (Belgian) and Saurer (French).

Draft Horses Cheap

The low cost of good draft horses and the narrow, winding streets which are common in Belgium have been added factors in hindering the sale of heavy trucks. The character of the streets permits advantageous use of small trucks, but makes it very difficult to operate big vehicles effectively. Despite this fact, 3 and 5-ton trucks are used extensively by breweries, constructors, lumber dealers and furniture movers. The largest user of trucks in Belgium is a brewery which operates 20 Saurers with specially constructed bodies.

The future for automotive development in Belgium is bright. The speed with which it goes forward will be determined very largely by the general course of the economic situation in Europe. Belgium is a densely populated, industrial nation capable of using to advantage many more motor vehicles than it does now. Better roads will aid automotive development as time goes on and as the automobile is recognized as a real utility.

THE Carburetion Section of the Purdue Engineering Experiment Station has completed tests on 24 commercial carbureters, so far as metering characteristics, temperature effect on metering, and frictional losses through the device are concerned.

Bulletin No. 11, by C. S. Kegerreis and G. A. Young, discussing the effect of speed mixture requirements has recently been issued.

High Wages Probably Permanent

Are big factor in huge
automobile sales; unit
costs likely to be cut

JOHN CARTER, the Planet treasurer, points out a few simple facts about the economics of wage scales. President Billings agrees with him to a large extent, but Jim Chance still thinks twelve dollars a day is too much to pay a man to paint his house.

By Harry Tipper

"WHY weren't you out at that golf game Sunday, Jim?" asked John Carter, vice-president of the Planet Motor Car Company, as he caught up with the sales manager at the entrance to the president's office.

"Jim's family is home," remarked Frank Lane, who officiated as treasurer of the outfit; "that should be a sufficient reason."

"It would be if Jim was accustomed to staying home Sunday when the family are around, but under the circumstances it is not enough to establish a good alibi," the president suggested.

"You're right, chief," said James Chance. "Fact of the matter was I had an appointment with a painter to go over the question of fixing up the house, and when I saw his estimates I hadn't enough strength left to get into the car. What are we coming to, anyway? I argued with that man for hours, but he simply pointed out to me that the high cost of labor and materials made it impossible. Well, of course, I finally gave in, because I couldn't do any better, and they started the job this morning. There are about three cars parked outside my house which the painters used to get to their work. Fine state of affairs. It cost me nearly as much to paint my house as it cost my father to build the entire place I was brought up in."

"Why don't you emulate Henry, then?" remarked Frank Lane. "I saw him about two weeks ago robbing some poor struggling painter of a job on his place. It's pretty hard to reconcile myself to the prices, though, with costs as they are. I had some inside decorating to do out at my place and I haven't recovered from the shock yet."

"That's so," said the president; "labor demands are constantly presenting increasing difficulties and the prices for labor seem to me to be outrageous in many cases. I don't know how the thing will be equalized, but I don't see how we can go on continually increasing wages and piling up the costs all round."

Can't Eat Cake and Have It

"You can't eat your cake and have it," suggested John Carter. "Jim just told us that his painters came to work in automobiles. How many of the twelve million cars in use today are owned by wage earners who have a little surplus and enjoy it that way? It's all right to kick at the high costs, but I don't see how you're to help the matter by reducing wages. Even if we leave out the automobile which would, undoubtedly, suffer from a reduction in earning power, the wage earner forms so large a part of the total purchasing power that a reduc-

tion of wages will merely shrink that power without helping the situation any. I don't see much chance of the worker giving up his increased earning power just because he is told that he doesn't get any more out of it.

"I was having a discussion the other day with Bill Smiley in the shop. You know him, Lloyd, I think. He's quite a character. Thinks a good deal, reads solid literature and has a logical, inquiring mind. He has been very much interested in economics of labor and prices for a year or two now.

"He said to me, 'Mr. Carter, I see by the calculations of the economist that I'm no better off now that I make \$70 per week than I was when I made \$40 some time ago. In other words, the cost of living has gone up the same percentage. Perhaps it has, and then, again, perhaps it has not—for me. But supposing it has. I had a \$5 surplus when I earned \$40; that is, it cost me \$35 to live. Now, on the basis of that fellow's figuring, I get a surplus of \$10 per week today. I'm saving it up twice as fast and I get the same percentage at the bank for my money; also, there are a lot of things that I can buy with my savings that don't cost much more than they did when I earned \$40 a week.'

No Drop in Fifty Years

"From his viewpoint, he would do almost anything to avoid going back.

"I have been looking up some records and I find that wages have not shown any recession in fifty years that was anything but slight and temporary."

"What do you mean, John?" asked James Chance. "You think we've got to stand for painters getting ten to twelve dollars per day and plasterers the same? You don't think there is likely to be any drop? Why, Lord, man, where are we to light with all this burden of overhead? Do you mean that we must simply make up our minds to spending more on everything? It doesn't seem reasonable to me and I don't think it's the correct dope."

"You haven't got the whole story as yet, Jim," returned John Carter. "I had no intention of getting into an argument on labor costs. I was just pointing out to you fellows that the automobile business depended a good deal on high wages and prosperity—a feeling of safety and free expenditures, and that you couldn't have low wages and good business at the same time.

"But, as you say, we can't go on paying higher and higher prices. That doesn't follow. It is possible to get more production per dollar and still pay the worker a higher wage. We have done it time after time, in the last forty years in the metal trades, anyway. We have added and changed machinery, improved the organiza-

tion, increasing the flexibility, and in a thousand details made it possible for the worker to earn more and cost less.

"That's probably the way it will have to be done in the future. It gets harder and harder to do it and, consequently, we grumble more at the wages and so forth, but, of course, all business requires more intelligence as it gets more diversified and more nearly at a maximum pace."

"That's a very good lecture, John," smiled President Billings. "I don't believe I could improve on it, either as to style or content. I get out of it two very important points. As an industry we are interested in a high standard of living, high wages, and a sense of security on the part of the worker, because we should lose a large market if he ceased to feel comfortable in his finances and hopeful of his future. That is something to remember and watch. It will help me to define my position when the talk on labor rates and the iniquity of high wages is being discussed where I am included."

"The other point I gather from these sage remarks relates to costs of labor. I gather that the amount paid the worker is not anything to worry about. It is the cost of the work which counts. The job is to pay the worker well and, at the same time, see that the work doesn't cost too much."

"That also is worth thinking about. As long as we think that costs must rise with wages we will not put the mental energy fully to work on the job of seeing that they do not. If we keep on the cost of work and forget the wages, except to hope they can be more, it is just possible that what seems without solution now will prove to be the beginning of a sounder method of doing business and a more effective industrial organization."

"And, of course," continued President Billings, "I did not overlook that very pertinent remark about not being able to have the cake and eat it at the same time. I suppose it is human nature to look for some way to do that. The other man is always to blame for our misfortunes and the faults we have are quite negligible. Our plate must be filled up at cost and our goods must sell at a handsome profit. I guess there's less of that than there used to be, but as applied to the question of wages, I suppose there is a good deal to it."

"Anyway, John, you have added a good deal of value to this meeting that I did not expect. It fits in with the other things we have to talk about and gets us all ripe and ready for snappy decision on matters that are our immediate job."

"Nevertheless, chief, twelve a day is too much for painters for my house," added James Chance, who was always looking for the last word.

Three Volumes for the Business Bookshelf

"**PROFITABLE MANAGEMENT**," by J. Lee Nicholson, is a little volume of about 100 pages which is likely to interest any of the higher executives in the automotive industry. Despite its brevity, this book covers the subject of management in a comprehensive manner. The short space devoted to each of the various topics involved makes it possible to get a clear picture of the relation between the various factors which would be impossible in a more detailed treatment of the same subjects. Ronald Press Co. is the publisher.

Beginning with a brief chapter on "Business Failures," which doesn't contribute much to the discussion in hand, Nicholson takes up organization and shows that human likes and dislikes, frailties and peculiarities are the basis of every management problem, and that successful organization depends fundamentally upon a proper coordination of the efforts of men. Then he goes on to discuss budgetary control, conservatism of invested capital, control of production and production cost, labor and wage payment methods, uniform cost-finding, marketing efficiency, operating inventories, and mercantile business.

The author of "Profitable Management" has published several other books in the past and his experience in writing on business topics is reflected not only in his knowledge of his subject, but in his ability to get to the point without loss of time.

* * *

FACTS are a good deal like ethical ideals with most of us. We praise them highly but don't pay much attention to them. Perhaps this is because facts aren't quite so exciting as propaganda. Certainly the latter is usually better dressed than the former.

Industrial facts would get more attention if always presented as attractively as they are in the little volume called "Petroleum Resources of the World," recently published by John Wiley & Sons, Inc. The book is "a concise record of salient facts related to the producing and prospective oil fields of the world and to the countries in which these fields are located."

The material is presented briefly, clearly, and in a form which makes it admirable for reference purposes. It is attractively bound in limp red leather and presents an inviting aspect to any business executive quite different from the dry-looking formidability of most tomes containing similar statistical and encyclopedic data.

The author, Valentin R. Garfias, was formerly Petroleum Engineer at the U. S. Bureau of Mines and has also acted as Petroleum Commissioner of the Mexican Government. His book is comprised entirely of facts, the only opinions expressed being in the preface. Here he says: "In the writer's opinion the future of the oil industry is secure for a reasonably long time, notwithstanding reports of alarmists to the contrary."

* * *

AUTOMATIC screw machines are a big factor in the economical production of automotive vehicles, because they permit of turning out the larger numbers of small parts made from bar stock at comparatively small expense.

As compared with other machine tools, the automatic screw machine requires comparatively little attention from the operator while doing its work.

On the other hand, the design of tools for the machine and the setting up operations call for considerable knowledge and skill.

A book for operators covering the construction and use of the Brown & Sharpe automatic screw machines has been issued recently by the Brown & Sharpe Mfg. Co. After a general description of the mode of operation of the machine the following subjects are dealt with each in a separate chapter: Erection and care of the machine; How to set up the machine for a job; Construction and adjustment of the machine; The standard tools; Automatic turret-forming and cutting-off machines; How to design cams; How to machine cams; Attachments. The book also contains a large amount of tabular matter, some of which is general data and the rest helpful in the setting up of the machine. The volume is well illustrated and is in all an excellent example of modern industrial literature.

AUTOMOTIVE INDUSTRIES

AUTOMOBILE

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Better Winter Enclosures Being Adopted

IT is a satisfaction to note that several of the new models announced recently have improved open bodies greatly by making them more nearly weather proof than has been common practice heretofore. This trend should have a favorable effect on open car sales since the purchaser will be able to drive his car the year around without discomfort and also without the added expense of a closed body.

One large producer in the medium price class has definitely abandoned the collapsible top and will fit a permanent top on all open models. In this case, as in others, particular care is used in fitting and supporting curtains while easily attached frames with glass lights which can be lowered for ventilation are provided at a moderate extra cost, thus converting the open body into the virtual equivalent of the closed type.

In some cases all curtains are mounted on metal frames which facilitate close fitting, prevent flapping,

reduce the likelihood of broken and scratched lights and add materially to the appearance of the car when the curtains are up.

Permanent tops make possible the use of pyroxylin-coated top materials which are available in a large variety of colors and are exceedingly durable when well made. Such tops in combination with the pleasing variety of durable colors for body finish now being employed should materially assist sales efforts. Few investments in the way of changed designs yield a handsomer return than do those which are so apparent on the surface as better fitting inclosures for the open car.

A Good Step Toward Safety

NO matter how good are the headlights fitted to cars and trucks, lack of proper adjustment is certain to bring about inadequate illumination or glare. Either of these is apt sooner or later to result in serious accidents. It is important, therefore, that the owner be furnished with explicit instructions concerning the use of the headlight adjustments now usually provided. It is, perhaps, more important that service stations be provided with similar instructions as well as with facilities for making the tests which determine whether the lights are in or out of adjustment.

Clubs affiliated with the American Automobile Association and the Bureau of Standards are cooperating in a campaign intended to eliminate glaring headlights by establishing suitable testing stations. There is no more logical place for such tests than the service station where all facilities and competent mechanics are available. The apparatus required is of the simplest character and should be a part of every well-equipped repair depot. Manufacturers should encourage service stations under their influence to become so equipped. No car should leave the dealer's hands with lights out of adjustment.

Some factories still turn out cars with lighting equipment which leaves much to be desired, though the difference in cost between reasonably good and an inadequate lighting equipment is practically negligible. There is no time like the present to correct faults of this character. Long fall evenings increase greatly the amount of driving after dark. Better illumination will improve driving conditions and is almost certain to result in saving many lives which might otherwise be sacrificed needlessly.

Improved Traffic Conditions Help Sales

ONE of the most serious factors tending to reduce sales of both cars and trucks is the congestion of traffic on the highways in and about all large cities. Much can be done to mitigate these conditions through local dealers' associations, and continuous effort in this direction should be fostered and supported by manufacturers. Such movements as are already afoot deserve hearty backing.

Among the things which can be done to relieve

traffic congestion is the use of circle layouts at important highway intersections—layouts which permit vehicles to enter and leave the crossing at tangents to the circle without stoppage of traffic in any direction. Such arrangements are already used to advantage at some points, but much more frequently there are conflicting lines of traffic where the control is first in one direction and then in another with the result that vehicles are intermittently started and stopped and not infrequently backed up in a solid line extending in some cases as much as a mile in each direction from the crossing.

The resultant loss of time is not only exceedingly annoying to car owners, but often makes other means of conveyance more convenient and rapid and has been a large factor in causing many former car owners to abandon their cars entirely.

Elimination of grade crossings at main highway intersections may be preferable to circles in some cases. The important thing is to avoid unnecessary delays in traffic, however the result is accomplished.

Through traffic can often be deflected around congested centers to the great advantage of all concerned.

Not infrequently the cost of police regulation of traffic will more than offset in a few years' time quite extensive highway alterations at crossings.

Racing Aids Design

THE relation of racing to the automotive industry in this country undoubtedly has changed very greatly in the last decade. It continues to be a valuable, although no longer a vital, part of automobile development. Racing has always been a useful means of trying out new engineering principles under severe operating conditions and has resulted in the perfection of various design features which are now integral parts of stock cars.

The value of racing from an engineering standpoint has not changed much with the passing years. New contest rules have forced technical development along constructive lines, so that the track still stands as an excellent engineering laboratory for testing new developments.

The publicity value of automobile races has decreased materially, however, so far as this country is concerned. The Indianapolis race, and other similar events held each year, are viewed with great interest as sporting events by large numbers of people. But there is no longer any direct connection between races and sales as was once the case. The largest selling cars have paid little attention to the track.

In foreign countries, conditions are different. Winning of an important racing event still has considerable merchandising value in certain places. A recent issue of *Tres Sport*, a French sporting publication, devotes the major part of an entire issue to a series of articles discussing what the passenger car owes to the racer. In other European countries and in South America the distributor frequently finds it worth while from a sales standpoint to participate in various racing events.

Even abroad, however, the sales value of racing appears to be on the decline. The Scandinavian branch manager of an important American line said the other day, for instance, that his organization does not actively support racing events in foreign countries. "Racing would be good advertising," he said, "if you could always win. But you can't. Only one car can come in ahead." This opinion is typical of a good many others that have been expressed from time to time by men qualified to view automobile racing from the standpoint of sales and publicity. They think its merchandising usefulness is declining to a considerable extent.

Indications are that automobile racing will always be an important factor in technical and engineering development and that it will continue to attract interest as a sporting event, but that its direct sales value will tend to decrease.

Body Production Methods Improving

FOR many years production methods in body manufacture lagged far behind those common in chassis construction, but within the past few years rapid strides have been made by body builders which have put the two branches of the industry more nearly on a par.

Where car manufacturers installed their own body building facilities it was quite natural that the effect of chassis production methods should be reflected in and applied to the making of bodies. Among body manufacturers competition has forced abandonment of many of the old-fashioned hand methods formerly employed in the coach trade.

Wider use of metal in body building has been brought about in part by developments in machine tools, especially powerful presses, and in part on the increasing cost of lumber suitable for body framing.

Considerable hand work still is necessary in finishing operations, but mechanical buffing and spray painting have already greatly reduced the time required in that class of work while better drawing metals and better die design are helping toward the elimination of irregularities which involve hand work in their removal.

In many body shops the various units which go to make up a finished body are being practically or wholly completed on the bench in the form of sub-assemblies which are later rapidly joined in a complete final assembly. Thus workmen are kept at repetition work in which they become highly expert and very rapid. Furthermore, the job is completed with the operator in a natural posture in which he works to best advantage rather than in awkward positions which militate against efficient performance.

Spot welding has largely superseded riveting while in many cases cement coated nails take the place of screws. Better finishing materials which dry rapidly and require less rubbing have helped speed up production and lower cost. These are some of the modern improvements which are rapidly placing body production on a parity with that of chassis parts.

Short Working Month Will Cut Down Output

New Car Sales Reported Good,
but Backwardness Is Shown
in Used Car Market

NEW YORK, Sept. 17—Fewer working days in September will result in bringing down the total output of automobile producing plants for the month. In September of last year production of passenger cars and motor trucks was 206,849 of which 187,661 were cars and 19,186 trucks. This was a decline of 70,000 from the total of the preceding month. There will be no such decline, however, this year and production for the month will be considerably more than a year ago.

The industry is fast on its way toward rounding out a production year close to 4,000,000 as against 2,659,064 in 1922, inclusive of both cars and trucks. It is possible that of the total, 3,600,000 will be automobiles as against 2,406,396 in the preceding year. The quarter that ends with this month will bring a total output less than the second quarter but probably greater than the last three months of the year.

Capacity Operations Reported

Reports from major car producers show capacity operations in some cases, with a gradual stepping up in others. Plant facilities have been rearranged to take care of new models, upon which deliveries are being made. It is indicated that there is a strong demand for such models, warranting top speed operations in the factories producing them. Innovations in design and equipment have been made which, in addition to the fact that the cars are of a new type, are acting as a stimulus to purchasing.

A large percentage of the output this month and for the balance of the year will be of closed cars, although a sufficient portion will be of open models to take care of the demand in sections of the country where local conditions make them more popular. Profiting by past experiences, it is not expected that deliveries of closed cars will be held back because of a body shortage. Body making plants are better equipped to meet the anticipated demand.

While new car sales are reported good, the used car movement is somewhat backward, a condition to be expected during the new model season. Various expedients are being adopted

Business in Brief

NEW YORK, Sept. 17—Advancing cotton prices, coupled with cool weather and the advance of the season have all contributed to improvement in fall buying in the West and in some parts of the South.

The Japanese disaster has been felt in that the buying from the Island Empire has had a perceptible effect upon the steel and lumber trade in this country.

The flurry over coal has subsided.

Crop reports are irregular, and in the Northwest there is some fear that cold weather or frost may affect a portion of the Western corn crop. Corn in the eastern section is coming strong, and it is estimated that the country's crop will be 3,078,000,000 bushels, as compared with 2,891,000,000 bushels last year. West of the Missouri plowing and seeding of wheat is progressing well. The movement of wheat in the Middle West and Southwest has decreased.

Car loadings set a new high record for the week ending Sept. 1, a total of 1,092,567 being reported, bettering the previous week by 22,635 and 168,761 of the same week a year ago.

Bank clearings increased 12.7 per cent over last week, a total of \$6,286,977 being reported. Bank debits were \$6,201,147,000, which is an increase of 11.3 per cent over last week. There were 289 business failures, as compared with the previous week's 281.

Indications of increased employment were noticeable because of firmer money. Stocks were active and weak, bonds heavy in sympathy with the stock market.

to enable these cars to be absorbed, thus doing away with an unhealthy accumulation in dealers' hands.

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Southern Motors Plant Purchased by National

HOUSTON, TEX., Sept. 20—National Motors Corp. has purchased the plant of the Southern Motors Co. in this city, for which it has been dickering since a receiver was named for the latter company some time ago.

Following the purchase of the plant and equipment it was announced that the National Six will be manufactured here. The amount involved in the purchase has not been announced.

It is presumed that manufacturing will begin as soon as proper machinery can be installed.

500 Expected to Meet at Detroit Congress

Date of International Transport
Meeting to Be Settled by
Questionnaire

DETROIT, Sept. 18—Features of the program of the International Motor Transport Congress to be held in this city in 1924 under the auspices of the National Automobile Chamber of Commerce was discussed at a meeting of foreign trade executives here today.

To give the congress the greatest measure of world-wide appeal it was determined that on each subject the program be arranged so that viewpoints be established by both American and foreign speakers.

Decision as to the actual dates of the congress and subjects to be discussed will be determined by a questionnaire which will be mailed out by the N. A. C. C. to members and to foreign automotive associations. It is expected that the attendance at the congress will be approximately 500 and that practically all countries in which automobiles are sold will be represented.

Among the foreign speakers it is expected to have leading figures of the automotive industry and trade abroad and prominent government officials. Road construction will have a prominent place on the program as a distinct feature in the improvement of general automobile conditions in all countries.

George F. Bauer, secretary of the foreign trade committee of the N. A. C. C., presided at the meeting here. Companies represented were Dodge Brothers, Hupp, Columbia, Federal, Hudson, General Motors, Cadillac, Republic and Black & Decker.

Ideal Tire Stockholders Offer \$201,000 for Plant

CLEVELAND, Sept. 20—Judge C. D. Westenhaber will decide Sept. 22 in the United States District Court here on bids received for the purchase of the Ideal Tire & Rubber Co.

Stockholders headed by O. L. Brown have made the highest bid of \$201,000 for the entire property and the National Mortgage Co. has the only other bid on the entire property of \$197,000. H. Muehlstein & Co. of Akron have bid \$22,780 for the personal property alone.

N. A. C. C. WASHINGTON OFFICE

WASHINGTON, Sept. 18—Offices of the National Automobile Chamber of Commerce, located for some years in the Albee Building, will be moved on Oct. 1 to the new Transportation Building, Seventeenth and H Streets, Northwest. The change is being made in order to furnish more commodious quarters.

Boston Mayor Opens M. A. M. A. Convention

Pays High Tribute to Motor
Vehicle Before Nearly 200
Men of Industry

BOSTON, Sept. 19—Nearly 200 representatives of the automotive industry had registered tonight for the annual convention of the Motor and Accessory Manufacturers' Association which opened this morning. The attendance is somewhat surprising because it had not been expected so many would come to Boston. This is the first meeting of the association which has been held in New England and Boston members are entertaining the visitors royally.

Not only is the association considering at its meeting those problems which relate to the manufacturing and merchandising of their goods, but to such broad questions as highways, taxation and traffic congestion.

One of the features of the opening session this afternoon was the address of Mayor James M. Curley, which was broadcast by radio, in which he paid high tribute to the motor vehicle and declared that solution of the traffic problem was one of the most important subjects confronting American cities.

Continuing, Mayor Curley said:

Has Revolutionized Life

The coming of the automobile solved problems that were vexing the great thinkers of the world, and by the new ideas it generated and the mechanical principles it developed it has revolutionized the relations of man to man, community to community, and nation to nation.

Out of the automobile has come the imperative need for improved highways and streets to take care of the vastly increased traffic and new methods for protection from the hazards of that traffic for human life and limb. At this particular time the increase in the industry outraces the provisions for prevention and protection, which involve expenditures that frighten finance, but which must be met by better and more numerous traffic lanes, surface or sub-surface, and safety highways for pedestrians.

The special mechanical and motive features of the automobile are as necessary in peace as they have been terrible in war, and have been applied to agriculture, navigation, productive industry and almost every department of human activity. The speed and mobility of the motor truck has hit the railroad hard and given it notice that it must move up or move out in the near future, and so its influence is felt beneficently or fatally all along every line of human endeavor.

Problems Need Solution

Here in Boston the growth of the automobile industry and the multiplication of machines have created problems for us that must be met and solved, that call for initiative, energy and great expense, and that constitute a warning to legislatures, municipalities and banks that a situation is here

Dealers Should Be Cautious in Trade-in Allowances They Make During Coming Year

AN INTERVIEW WITH E. V. RICKENBACKER,
Vice-President in Charge of Sales of the Rickenbacker Motor Car Co.

By D. M. McDonald,
Detroit News Representative of the Class Journal Co.

Detroit, Sept. 19.

INTRODUCTION and successful demonstration of four-wheel brakes in the fall and winter months will place the industry completely on a four-wheel basis by spring, according to E. V. Rickenbacker, vice-president in charge of sales of the Rickenbacker Motor Car Co.

This, in Captain Rickenbacker's opinion, is going to result in more cars going into the scrap heap next year than in any previous three years in the industry's history. In stating this, he said, he hoped to sound a warning to dealers to be especially cautious of allowances on trade-ins in the coming year.

Demand for cars equipped with four-wheel brakes will be so insistent, he declared, that dealers will sell new or used cars, with two-wheel brake equipment, only by making prices extremely low. To sell them low they will have to take them in at low allowances, he said, and, in far greater number than ever before, these allowances will be at scrap levels so that dealers will be able to take them completely out of the market without loss.

In many ways, Rickenbacker predicted, the four-wheel brake will prove to be as great an Eldorado for the industry as the closed car development was and is. Buyers in increasing number daily are insisting on four-wheel brakes, and he cited his own company's business which has jumped from 40 per cent to 80 per cent four-wheel brake business in two months. By January Rickenbacker production will be four-wheel brake exclusively.

The wet, slippery, snowy streets this winter will put the four-wheel brake over in such conclusive fashion, he asserted, that prospective buyers will not be satisfied with anything else. By the time the real test weather sets in, he said, there will be many thousand four-wheel brake cars in operation in all parts of the country. That is all that is necessary, he said. Everyone will want them when they see them in action.

Faulty four-wheel brakes will get by in the first rush of buying, Rickenbacker said, but after that manufacturers must expect discrimination to set in. Poor brakes will get by only the early rush, he said, and then manufacturers will not only have to change but will have to overcome a lot of ill-will engendered by failure to get started right. This latter condition he ascribed entirely to lack of preparation.

The four-wheel brake, Rickenbacker said, is only the first of a number of improvements in fundamental automotive development. The next three years, he said, will see more advancement in fundamentals than the industry has witnessed in the past ten.

Of the business possibilities in the next few months, Rickenbacker said there was nothing but good things in sight for the companies with four-wheel brakes. On the other hand, he said, dealers in cars not equipped with four-wheel brakes are suffering and will suffer because their morale is shaken. As an evidence of this, he said, there is already taking place a large dealer turnover to companies with the brakes, and furthermore, star retail salesmen are going over to the dealers of four-wheel brake cars in large numbers.

that will test the talents and resources of the community. In this day we must keep ahead of our progressive civilization or be run down by it.

So I feel the coming of your special industry, automobile accessories, to Boston is a call to action, a reminder that we must ignore and avoid the fads and fancies of government reform, and meet the practical demands of the age, or acknowledge ourselves beaten in the race.

Boston is a peculiar city, with a peculiar people, with sometimes, I think, a congenial antipathy to change, yet change she must to meet the new conditions of a new age, and that change will cost money.

Yours, gentlemen, is a great industry; but if it is to do the good to human society that lies in its revolutionary progress, and you are to win the prizes your activity entitles you to, each of you must become a missionary to educate your countrymen in what the automobile really is and means and does,

for the automobile is the handmaid of transportation, the keystone of our new civilization and is entitled to a program of the most generous character of expenditure that this nation has ever known, for the promotion of one of the most necessary and worthwhile institutions that this nation and the world needs.

Two announcements of importance to the industry were made today. One was by Roy D. Chapin in regard to the agreement on basic principles for the construction of highways, which has been reached by the Association of Highway Officials, Bureau of Public Roads, Investment Bankers' Association and the N.A.C.C.

The other was by Harry Meixell in his address on the subject of motor vehicle taxation when he made public the plans of the Motor Vehicle Conference

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Railway Containers Boost Door Delivery

Less Than Carlot Shipments Provided for in Detroit United Lines Plan

DETROIT, Sept. 17—Detroit United Lines, operating approximately 600 miles of electric railways out of Detroit to Toledo, Jackson, Flint and Port Huron, has completed plans for making less than carload shipments in special demountable containers over its trolley lines, thence delivering them by truck not only to the doors of consumers, but to the very spot in the establishment at which the shipment is required. The company is awaiting the completion of equipment.

Traction officials of lines in States adjacent to Michigan were given a demonstration of the D. U. L. plans Thursday when types of carriers, cars, loading platforms and trucks were shown. None of these is permanent yet, but they all represent the types that will be given first trial.

Trucks to Pick Up Shipments

Small platforms will be built in rural communities for farmers who do not wish to bring their produce into company terminals. These will be picked up by company trucks. One advantage to the farmer is expected to result from his being able to market his produce more direct.

In working out the plan, the company has had under consideration primarily the elimination of the time required by frequent handling, thus reducing shipping costs. By placing the shipment, if less than carload, in one or more of these special containers, there is no handling at all until the merchandise or produce is delivered to the consignee. The containers, on wheels, are pushed from the truck at point of consignment, and left there to be unloaded by the consignee.

The containers will vary in size, but later will be standardized, as it is learned which sizes are most adaptable for various shipping requirements. At present there are many sizes. The largest of these are fitted with wheels which fit a track running crosswise on the company's flat railway cars and which also fit the skidway on specially built tracks, upon which they will be hauled from railroad terminal to the consignee.

Containers Are Demountable

Operation of the system has depended upon the perfecting of a mechanism by which the demountable carriers can be moved from the railway car to the truck by the truck engine, thus eliminating the crane with its stationary objections.

By means of a cable arrangement built into the truck by the Ideal Truck Equipment Co. of Chicago, the carriers are hauled from the car to the truck, they

"OLD TIMERS' CLUB" ENROLLS 600 MEMBERS

CHICAGO, Sept. 17—Enrollment of about 600 members for 1923 in the Old Timers' Club is reported by Harry P. Branstetter, president. The club's officers are conducting an active campaign to enroll as many as possible of the men who have been connected with the automotive industry for five years or longer.

The club has been made a social organization with membership dues of \$5 a year, with plans for meeting at the New York and Chicago national automobile shows. Branstetter declares the club should have 10,000 members within a few years. Branstetter's office is at 2556 South Wabash Avenue, Chicago.

are locked in the truck mechanically and are also locked mechanically on the railway car and are declared by the company to be practically fool-proof.

For smaller shipments there are smaller carriers, also on wheels, but not requiring special tracks or railway cars. These are loaded into the company's regular box cars and are rolled to ordinary trucks for delivery.

The company's plan is to have two sets of rates, one the ordinary carrier rate for shipping from terminal to terminal, the other pickup and delivery rate, which takes the shipment direct from the farm or factory and delivers it direct to the market or factory.

Shippers operating their own trucks at either end have only the carrier charge to meet.

The carriers will be subject to special demurrage charges, which the company will work out. Incidentally, the plan has not progressed far enough yet where any of the charges have been determined. The carriers will be set down or turned over to the consignee and must be turned back or ready for pickup by the company within specific unloading periods, or demurrage charges will be assessed similar to those enforced on railroads.

(Continued on page 611)

All Old Commerce Claims Are to Be Paid in Full

DETROIT, Sept. 18—Reorganization of the affairs of the Commerce Motor Car Co., which was taken over by the Commerce Motor Truck Co. in the spring, is reported successfully completed and creditors are given assurances of full payment of claims.

The organization is headed by Walter E. Parker, who was president of the old company. Charles L. Granger, who returned as general manager to aid in reorganizing the company's affairs, continues in that position.

Owen Syndicate Bids for Stevens-Duryea

If Its Offer for Plant Is Accepted It Aims to Continue Production of Cars

SPRINGFIELD, MASS., Sept. 17—Ray M. Owen, president of the Owen Dyneto Co. of Syracuse, former manufacturer of the Owen Magnetic car and a man who has been identified with the automobile industry since its earliest days, is at the head of a syndicate that is bidding for the plant of the Stevens-Duryea Co., Inc., at Chicopee Falls. Associated with him are R. W. Stanley of the Stevens-Duryea Co. and Roy Rainey, a prominent coke and steel man who has been identified with Owen in many of his big transactions in the automobile business.

The identity of the Owen syndicate came out in a continued hearing in the Superior Court on the receiver's petition to sell the property for \$450,000. On the plea of the minority creditors, however, the decision went over until next Saturday in order that the objectors may have time to seek a customer who will pay a higher price. The Owen syndicate met this by extending its offer to next Monday.

Indications point to the Owen offer being approved, in which event it is the intention of Owen to continue the manufacture of automobiles in the Stevens-Duryea plant. It is not at all unlikely that the name Stevens-Duryea will continue to be used inasmuch as the sale is proposed to convey to the purchaser the right to use the name if he desires.

"I am not ready to go into details as to my future plans," said Owen. "I haven't got the plant yet and not until I get it will I be in a position to talk. I will say, however, that we want to continue the manufacture of automobiles in the Stevens-Duryea plant and we have planned accordingly."

Harrington Stockholder Petitions for Receiver

BOSTON, Sept. 18—Clarence M. Johnson, a stockholder in the Harrington Shoe & Tire Co. of Malden, has filed a petition for a receiver for the company, alleging that the trustees are paying dividends illegally without being earned and in other ways not handling the property for the best interests of the creditors. It is alleged in the bill that out of every \$12.50 received from the sale of a share of stock, the trustees are taking \$5.50.

The trustees are Albert H. Harrington, Roscoe A. Pickens, Frank C. Harrington, A. R. Conant and William T. Soulee. The company was formed as a \$10,000,000 corporation to build tires and shoes, based on patents secured by Albert H. Harrington.

Packard Year's Net Reached \$9,500,000

\$7,000,000 Is Available for Dividends, Which Is Triple Amount in 1922

DETROIT, Sept. 18—Packard Motor Car Co. reports net operating profits of approximately \$9,500,000, after taxes, for the fiscal year ending Aug. 31. Allowing \$2,500,000 for contingencies in the reserve, there will be a balance of about \$7,000,000 for dividends, which sets a Packard record. This compares with \$2,115,000 net for dividends in the 1922 fiscal year, and \$6,277,000 in 1920, which was the best previous year.

It is announced that during the past fiscal year the company retired all its outstanding bonds, amounting to \$7,400,000, and at the end of August had cash and marketable securities approximating \$15,300,000. The securities are chiefly United States Government obligations. The company, it is stated, is entirely free from bank indebtedness.

Starting the new fiscal year, the company has no surplus of finished cars on hand, either at the factory or at its branches. Plans call for the production of about 18,000 single-sixes and 6000 single-eights, but the volume of incoming orders has led to the announcement that it may be necessary to expand the schedule, possibly increasing single-eight production to 8000 or 10,000 cars.

Chevrolet Establishes Zone Region in South

DETROIT, Sept. 17—M. D. Douglas, zone sales manager of the Chevrolet Motor Co. at Flint, has been appointed regional sales manager of the Southeastern region, comprising the Cincinnati, Louisville, Atlanta and Charlotte zones. The establishment of this new region is in furtherance of the company's policy to concentrate its sales facilities consistent with the growth of the dealer organization.

Douglas is succeeded at Flint by A. F. Young, general sales manager at Janesville, who in turn is succeeded by G. J. Gates, formerly assistant sales manager at Janesville. Howard J. Walsh, who for several years has been connected with the central office sales organization at Detroit, has succeeded W. E. Kalman, resigned, as zone sales manager at Pittsburgh. The changes were effective Sept. 15.

POLICE BUY MORE CYCLES

SPRINGFIELD, MASS., Sept. 18—Hendee Manufacturing Co. reports a marked increase of demand for motorcycles for police use. The Pennsylvania State Constabulary is for the third time being motorized extensively and has placed an order here for fifty Indian Big Chief No. 74 machines, with sidecars, as

GOVERNMENT FILMS "STORY OF A TRUCK"

WASHINGTON, Sept. 15 — A film entitled "The Story of a Motor Truck," and showing the operations incident to the manufacture of a truck, has been completed by the Bureau of Mines, in cooperation with the General Motor Truck Co. It will be released for exhibition by educational and civic agencies under the auspices of the Department of the Interior. The Government took great care in filming the "close-ups" to show the delicate operations necessary in machining various parts.

The molding and forging operations are also shown in fine detail. Animated photography is used to bring out in a graphic manner the principle of operation of various parts of the motive machinery of a motor truck. A vivid comparison of the various parts of a motor truck, with those of a passenger-carrying automobile, is shown.

the first consignment of cycles likely to total around 150. The Massachusetts State Patrol has added forty motorcycles to its previous equipment and now has 115 in use.

Motor Transport Firm Is Organized in Russia

WASHINGTON, Sept. 17 — Consul Richardson has advised the Automotive Division of the Department of Commerce of the formation of a new Russian motor transport company. It has a capital of 7,500,000 gold rubles and is known as the "Autopromtorg," with headquarters at Moscow.

It will engage in the purchase and sale of motor cars, tractors, motorcycles, and the exportation of motor cars for general transportation.

Fifty-five per cent of the shares of the new organization have been taken up by the Commissioner of Transportation, and 10 per cent by the Commissioner for Foreign Trade. The remaining 35 per cent will be held privately.

Rolls-Royce Returning to Normal Production

SPRINGFIELD, MASS., Sept. 19—Rolls-Royce, Inc., has been operating at a reduced scale of production of late, during the inventory period and the time for the usual slowing-down. It was said today, however, that the curve is on the rise, and that normal production is indicated for the near future, with prospects that the plant would again be making ten to eleven cars weekly by Jan. 1.

From the first of the year until mid-summer the company did a steadily increasing business, and the outlook for orders is said to be very encouraging.

Plate Glass Merger Unites 2 Companies

Standard and Heidenkamp Consolidation Will Provide 7,500,000 Ft. Yearly

NEW YORK, Sept. 18—The formation of the Standard Plate Glass Corp., which has acquired the Standard Plate Glass Co. of Butler, Pa., and the Heidenkamp Plate Glass Corp. of Springdale, Pa., announced today, will ease the situation so far as the automobile industry is concerned. The new combination will have a capacity in excess of 7,500,000 sq. ft. per annum. This is about the same capacity as the Ford plate glass plant, the subsidiary recently taken over by the Durant Motors, Inc., or the source of supply of General Motors.

Both companies taken into the merger are concerns of standing, the Standard Plate Glass Co. having been organized in 1887, and the Heidenkamp corporation in 1900. Joseph Heidenkamp will be chairman of the board, and the president will be Warren Turner, former president of the Standard Plate Glass Co.

The new corporation will be capitalized at \$4,000,000, with 100,000 shares of no par common stock. Its statement of financial conditions shows land and equipment valued at \$6,365,705; investments, \$900,000; current assets, \$1,907,000, and other items totaling \$10,300,812. Current liabilities aggregate \$608,332, and there is an excess of assets over liabilities of \$5,442,480, represented by 40,000 shares of preferred stock at \$100 each and 100,000 shares of no par value common stock.

Leonard Tractor Maker Held to Be Insolvent

JOLIET, ILL., Sept. 15—Petition in bankruptcy has been filed against the Leonard Tractor Co. and Judge Adam C. Cliffe has declared the company insolvent. Liabilities in excess of \$100,000 are claimed by three creditors.

Wilbur Wynett, a stockholder, on June 16, asked the court for a receiver for the company, citing at that time that its asset sheet of \$1,477,966 was considerably in excess of a fair value of its properties. The company has manufactured only a few tractors.

Star and Mohawk Merger Will Not Be Carried Out

AKRON, Sept. 17—L. H. Firey, president of the Star Rubber Co., Inc., has notified Star distributors that his company will not merge with the Mohawk Rubber Co., as had been proposed.

"For many reasons the directors of this company have decided that such a merger would not be to the best interests of the company or its distributors," Firey announced.

Ford Builds Conveyor Systems for Lincoln

No Figures Available to Show to What Extent Assembly Will Be Increased

DETROIT, Sept. 18—In conjunction with the addition of new buildings to the Lincoln plant of the Ford Motor Co. conveyor systems are being built somewhat similar to those in all Ford plants which when completed will result in important changes in assembly methods.

No figures have been announced as to the extent of production possible under the rearrangement. August production with factory changes under way totaled 897, a new high mark.

Two line bench conveyors will take the place of present bench work on heavy cylinder blocks and heads and will reduce cartage to practically nothing by keeping everything in motion between processes. On bench work one man usually performed complete work on one block, but on conveyor work men will be assigned to particular operations, increasing speed and cutting down the number of men required.

Improvements are being made to the machinery as it is being moved into the new buildings and considerable new equipment is being added.

Increased space given by the new buildings is 311,000 sq. ft. Production stock equipment is located centrally in the new addition, within easy reach of all departments. Eight soda water pits supply compound to 1500 machines, while formerly each machine had its own pit and pump.

Daily output of the Ford artificial leather plant located at the Highland Park factory is now approximately thirty to fifty thousand yards a day.

Budapest May Get Cars By Order of Government

WASHINGTON, Sept. 19—Efforts are being made by the Royal Hungarian Automobile Club in cooperation with the Automotive Division of the Ministry of Commerce to secure for Budapest dealers permission to import 360 automobiles during the balance of the year. This information has been received by the Automotive Division of the United States Department of Commerce from Consul Digby A. Willson at Budapest.

If the importation is permitted it will be divided among the dealers and the consulate is assured that American manufacturers will receive a quota equal to those given the German, Austrian and Italian manufacturers; but as applications for import permits are made through the Budapest authorities it is essential that more American cars be represented directly in Budapest.

It continues to be difficult to secure the requisite foreign currencies with which to cover orders placed with foreign

PLANNING READING COURSE IN SERVICE

NEW YORK, Sept. 18—A course of reading for service men is being prepared by the National Automobile Chamber of Commerce under the direction of H. R. Cobleigh, secretary of service.

With this end in view Cobleigh has circularized the industry, asking authorities to list for him not only technical automobile books, but also those relating to the merchandising side of service, systems for the conduct of service work and, in short, any book that will be valuable to a factory service manager or a dealer service manager.

When the returns are all in, Cobleigh will map out a reading course for service men which, it is expected, will aid materially in the development of the men who look after this most important branch of the industry.

The N. A. C. C. service committee is made up of F. A. Bonham, Durant, chairman; F. J. Wells, Pierce-Arrow; A. B. Cumner, Autocar; L. C. Boyles, Marmon, and W. M. Warner, Cadillac.

manufacturers, but some help is hoped for from the Budapest office of an American corporation which has expressed a willingness to finance such purchase by lending the necessary amount of dollars at 1 per cent interest to distributors who import American cars.

A list of potential purchasers of cars, obtained in a canvass made by the consulate cooperating with local distributors and the Police Registration Bureau, may be secured from the Automotive Division of the Department of Commerce.

New Car Promotes Sales, Ford Motor Co. Reports

DETROIT, Sept. 14—Ford sales in August totaled 161,567 cars and trucks, 39,608 more than were delivered at retail during the same month last year. In the seven months from Feb. 1 to Sept. 1 sales totaled 1,212,553. Orders now on hand, the company declares, indicate a continuance of capacity demand. The new type cars are reported as attracting wide attention and serving as a stimulus to sales.

Business and agricultural interests are reported as continuing to make increasing demands for Ford trucks, and sales for August reached a total of 17,441, a gain of 5147 over August, 1922.

FORD'S WEEKLY OUTPUT

DETROIT, Sept. 19—Ford Motor Co. production figures for the week ending Sept. 18 shows output of 40,665 cars and trucks for domestic sale. Tractor production was 1826 and Lincoln car, 185.

Chemical Industries Exhibit New Products

Displays at National Exposition Show Application in Automotive Field

NEW YORK, Sept. 17—It was learned at the National Exposition of the Chemical Industries, which opened here today, that many manufacturers of lacquers, as well as some varnish makers, are developing lacquers for automobile finishing and that numerous car manufacturers are displaying considerable interest in these products.

None of the exhibits are confined to products used only in the automotive industry but many contain examples of the application of these products in the automotive field.

One of the chemicals newly developed by the New Jersey Zinc Co. shown in the exhibit is a form of zinc-oxide termed Kadox. This is a white powder which is said to be far more finely divided than it is possible to grind the oxide. It is a fume product and is said to be coming into extensive use as a pigment and vulcanizing activator in the rubber industry.

Showing of Sheet Zinc

It is claimed that it greatly improves the tensile strength and resistance to abrasion of rubber goods. Sheet zinc is also finding some automotive applications in the form of moldings and stampings which take a high and quite lasting polish.

Among the alloys shown is monel metal which is being used for valves, accelerator pedals, door handles and other automotive parts. Strips of this metal are said to be used extensively by the Locomobile Co. in one form of top construction.

In the B. F. Goodrich Co. exhibit there are shown bronze bearings with rubber linings for use in contact with water, especially on pumps and marine propellers. This rubber lining is made with a helical groove in which sand and foreign matter collects. The water serves as the lubricant and it is said to be practically impossible to score the shaft.

Substitute for Fabrics

The same concern is developing a line of materials used in place of fabrics in certain body parts. One article in this class is a rubber doorstop.

The Bureau of Standards is exhibiting samples of wood, metal and other materials which have been spray-coated with metal. This process is understood to involve feeding wires of the metal through an electric arc and then projecting the vapor of the metal against the surface to be coated. An instrument using a carbon pile, the electrical resistance of which varies with pressure, as a means for measuring stresses in structural elements is also shown.

Men of the Industry and What They Are Doing

G. M. Party Sails Sept. 22

General Motors representatives, off for the English and French shows, will sail Sept. 22 on the Majestic. In the party will be H. H. Bassett, president and general manager, and F. A. Bower, assistant chief engineer of the Buick Motor Co.; B. Jerome, chief engineer of the Oakland Motor Car Co.; W. H. Moyse, chief engineer of General Motors of Canada; W. R. Strickland, assistant chief engineer of the Cadillac Motor Car Co.; R. K. Jack, chief engineer of the Olds Motor Works; Lawrence and Alfred Fisher of the Fisher Body Co., and D. A. Laing, sales manager of the General Motors Export Co.

Rickenbacker to Visit Europe

Capt. E. V. Rickenbacker, accompanied by E. R. Evans, chief engineer of the Rickenbacker Motor Car Co., will sail during the week of Oct. 14 for Europe, where they plan to visit the leading automotive factories in Germany, France and Italy, and also witness the London and Paris shows. They will also visit the Zeppelin works in Germany with a view to keeping informed on aircraft developments. The trip will take about a month's time, giving them opportunity to return to America in time for preparations for the national shows here.

J. A. Kline Resigns

J. A. Kline has resigned as general manager of the Kline Car Corp. of Richmond, Va. As yet he has not announced his future plans, but inasmuch as he has been connected with the industry since 1899, it is likely he will continue in it. He served as general manager of the Kline corporation since its inception in 1911.

LaFrance with Distributor

A. Ward La France has retired as vice-president and superintendent of engineering of the Walker Motors Co. of New York City, manufacturing trucks, and will devote his attention to the Blackstone Motor Co. and the Silver-town Motor Co. of Elmira, N. Y., handling the Maxwell and Studebaker respectively.

Samuel Grow Handling Cars

Samuel Grow, treasurer of the Grow Tire Co., Boston, since it was organized some years ago, has resigned to enter business with his brother, Frank Grow. They have formed the Majestic Motor Car Co., which will market used cars principally, but will take on new cars not represented in Boston on consignment. The firm will also sell tires.

Dinnenn Succeeds Fuller

H. B. Dinnenn, production manager, has succeeded L. W. Fuller, for three

years works manager of the Moline Plow Co. Other changes are expected, incident to the company's retrenchment policy announced when the segregation of the Stephens Motor Car Co. was decided upon.

Alexander Now with Brokers

Kirk B. Alexander, former sales manager of C. H. Wills & Co., has become affiliated with E. E. McCrone & Co., brokers. He organized the Power, Alexander & Jenkins Co. in 1914, and as advertising counsel was instrumental in the development of the merchandising policies of Hupp, Paige, Cadillac and Ford. He retired from the advertising field in 1920 to join C. H. Wills.

Croselmire Made Vice-Chairman

Fred A. Croselmire, for sixteen years a member of the Contest Board of the American Automobile Association, has been appointed vice-chairman of that body by Chairman Joseph Mack. Croselmire will have supervision of the New York office of the board. Colonel Azel Ames of New York City has been made a member of the board.

Burke Electric Promotes Downs

James R. Downs has been promoted to the position of manager of the mining department of the Burke Electric Co. of Erie Pa., with headquarters in Pittsburgh. His assistant, William S. Wallace, has been placed in charge of the Pittsburgh office, the position formerly held by Downs.

Schultz with Ohio Fageol

L. H. Schultz, formerly of the automotive division of the Department of Commerce, has been appointed secretary and member of the board of directors of the Ohio Fageol Motors Co., which has executive offices in Cleveland. He will aid in building up the organization and later on assist with sales work.

F. M. Cockrell Joins Agency

F. M. Cockrell, formerly promotion manager of the McGraw-Hill Co., has joined the Campbell-Ewald agency, acting as manager of industrial advertising on the staff of the New York office. Cockrell was connected with the McGraw-Hill Co. for seven years in various executive capacities and previous to that was identified with the Westinghouse Electric & Manufacturing Co.

Turner Is Battery Sales Head

L. Fort Turner has been appointed sales manager of the Perfection Battery & Light Co., Atlanta, one of the largest battery manufacturing plants in the South.

Snyder in Stutz Sales Work

C. A. Snyder has been appointed to the staff of the sales department of the Stutz Motor Car Co. of America, Inc. He will have charge of statistical research work and will devote a considerable portion of his efforts to sales promotion. Previous to joining the Stutz company, Snyder was identified with the Cole Motor Car Co. for more than seven years, first as advertising manager and later as secretary to President J. J. Cole. At the time H. R. Hyman, now in full charge of sales and advertising for the Stutz company, was advertising manager for Cole, Snyder was his assistant.

Harry D. Kline with Agency

Harry D. Kline, for the last three years advertising manager of the Corduroy Tire Co., Grand Rapids, Mich., has resigned to become associated with the Brearley-Hamilton Co. Advertising Agency of Grand Rapids. Kline will be account executive with the organization.

Motorists' Association Holds Annual Meeting

CLEVELAND, Sept. 20—The annual convention of the National Motorists' Association opened here today with an address of welcome by Judge Walter D. Meals of Cleveland, president of the organization.

Motorists from every part of the United States and Canada were brought together in this convention to discuss among other subjects the valuation of automobiles for taxation, highway construction, the gasoline situation, to provide more simplified and accurate road information and gulf-to-border and coast-to-coast emergency mechanical aid for highway travelers.

Leaders in automobile clubs, manufacturers, retailers and others prominent in affairs of the automobile industry are to deliver addresses. Among these are George G. G. Peckham, president of the National Automobile Dealers' Association; Edward S. Jordan, president of the Jordan Motor Car Co. of this city and J. Borton Weeks of Philadelphia, vice-president of the National Association.

Aviator Anchors Plane to Traveling Dirigible

NEWPORT NEWS, VA., Sept. 18—To prove it is possible to operate small airplanes from portable bases, Lieut. R. K. Stoner today anchored his ship to a moving dirigible above Langley Field. He was traveling at the rate of 75 m.p.h. at the time. Overtaking the army dirigible C-3, going at 60 m.p.h., he swooped under the big bag and a stick dangling from the airship was fitted into an eyebolt on top of the airplane.

New Accessory Show Planned for Chicago

Scheduled for Time of A. E. A.
Exhibit—Manufacturers
Receive Contracts

CHICAGO, Sept. 17.—Promotion of an automobile accessory show, to be held here at the time of the Automotive Equipment Association's annual business exhibit, Nov. 12 to 17, and open generally to manufacturers who are not members of the A. E. A., has been undertaken by Robert M. Jones and a number of associates who are interested in the manufacture of automotive accessories.

Under the name of the Manufacturers Auto Accessory Exhibit, Jones, as manager, has sent circulars of information and blank contracts to several hundred manufacturers. Jones and his associates have leased the First Infantry Armory for the show and have arranged for 200 exhibit spaces. The prices have been fixed at from \$200 to \$300 for spaces measuring 8 x 10 and 10 x 12 ft.

This show, Jones said, is intended to provide an opportunity for automotive manufacturers, who are not eligible to enter the A. E. A. show, to exhibit their products under one roof at a time when jobbers and buyers are congregated in Chicago. Exhibition at the A. E. A. show, as has been the custom for years, is restricted to manufacturers who are members of the association, and last year the attendance was limited to members, which meant that only those jobbers who were affiliated with the association would view and buy the products displayed. This year invitations will be issued to a list of non-member jobbers.

Aims at Room Exhibitors

As a result of these restrictions, it has been the custom for many independent manufacturers to engage hotel rooms for the period of the A. E. A. show and invite the trade to see their products in these rooms. It is these exhibitors that Jones hopes to bring together in the Armory show, to which the public would be admitted.

Jones said that considerable interest has been shown in response to his first circular, but that final decision as to the holding of the show depends on whether or not enough contracts are signed to make it pay expenses. Jones is president of the Process Products Co., Chicago.

FORD SYSTEM DEFENDED

NEW YORK, Sept. 17.—A copyrighted wireless from London to the *New York Times* states that at the conference on industrial welfare, held at Balliol College, Oxford, under the auspices of the Industrial Welfare Society, the Ford system of production was assailed as soul killing.

Dr. William W. Johnson, medical officer of the Ford Motor Co., took exception to this, saying that Ford employees in

FRENCH MUST USE GASOLINE MIXTURE

PARIS, Sept. 10 (by mail).—A national law calling for the mixture of 10 per cent Government alcohol with all gasoline imported into France entered into force this month.

Under this new regulation licenses must be obtained to import gasoline into France and on Oct. 1 importers must purchase from the Government a quantity of alcohol equal to 10 per cent of their gasoline imports during the month of September.

Automobile owners will therefore have to use the gasoline-alcohol mixture from the month of October. The price of State alcohol being higher than that of gasoline, it is expected that there will be a slight increase in the selling price of gasoline on the French market next month.

Great Britain all received three shillings per hour, and none of them seemed to have lost his soul. One woman representing the English Electric Co. declared "we don't want men of intelligence if we are going to Fordize industry."

Iowa Rail Commission Forming Bus Attitude

IOWA CITY, IOWA, Sept. 15.—The Iowa State Railroad Commission opened a series of State-wide meetings here which will probably determine its attitude toward the motor buses and form a basis for its first formal construction of the phrase "public necessity," as related to the bus operation.

Meetings at Marshalltown, Council Bluffs, Waverly, Mason City and Waterloo follow this city, and at each point the rail lines are disputing the motor buses' right, claiming that these points are joined and served by steam roads, and there is no necessity for bus lines.

Recently the commission hearing contradicting claims in the Waterloo-Cedar Falls bus route learned that both bus and interurban lines were engaged in price cutting, which brought both below actual operating expenses.

The interurban claimed its earnings were cut nearly \$80,000 in one month because of the bus line. The commission will be called upon to take into consideration whether or not the bus lines will so cripple transportation between the points they attempt to serve that all traffic will be demoralized.

68,281 G. M. STOCKHOLDERS

NEW YORK, Sept. 17.—General Motors Corp. had 46,871 common stockholders of record Aug. 20. The total number of stockholders of all four classes now is 68,281, compared with 67,417 in the preceding quarter.

Wants Data on Lamps to Reach All Owners

Bureau of Standards Asks Car
Makers to Add to Their
Instruction Books

WASHINGTON, Sept. 15.—Officials of the Bureau of Standards have asked automobile manufacturers to revise their instruction books furnished with new cars in order to include information on adjustment of headlights. The Bureau also has asked for detailed information relating to experiments at the factory on the adjustment of headlights on new cars.

For the past month the Bureau has been engaged in an active campaign to secure better adjustment of headlights and has given most of its attention to the condition existing in Washington.

Four lines of action have been followed which include the adjustment of headlights by dealers of new and used cars in their possession; cooperation with motorists' associations with the object of installing adjusting screens in garages; cooperation with the Safety Council in securing publicity on the necessity of headlight adjustment; and work with enforcement officers to obtain enforcement of the local regulations in the proper manner.

All those concerned have willingly assisted the Bureau, and it is believed that real progress has been made.

In a statement issued today the Bureau of Standards stated that satisfactory specifications for the testing of headlight lenses are available as the result of careful work by the Illuminating Engineering Society.

S. A. E. Approves Specifications

For regulatory purposes, these specifications have been approved by the Society of Automotive Engineers. Based on them, eleven states have prepared a list of twenty-seven lenses which, when properly adjusted, comply with the Illuminating Engineering Society's specifications as to intensity and distribution of light.

Notwithstanding the fact that adequate specifications are available and are now being used for the approval of type of lenses, the situation in general is not satisfactory because a large majority of headlights are not properly adjusted, it is stated.

PATENT SUIT SETTLED

DETROIT, Sept. 14.—Wolverine Metal Specialties Co. of Grand Rapids, sued by Miller & Pardee, Chicago automobile accessory manufacturer, for alleged infringement on patent on a radiator cap, has effected a settlement, according to action in Federal Court this week. The Wolverine company has obtained certain license rights under the patents owned by Miller & Pardee.

N. A. C. C. Wants State to Determine Taxes

Directors Adopt Taxation Platform Following Report of Special Committee

NEW YORK, Sept. 17—After giving the question careful consideration for months, the special committee of the National Automobile Chamber of Commerce has reported what it considers to be the fundamental principles for motor vehicle taxation.

In brief, the committee holds that the State should be the sole taxing agency and determine the tax, which should not be more than required for the administration of the State motor vehicle department and the maintenance of the highways of the State.

This report has been adopted by the directors of the N. A. C. C., so that it represents the taxation platform on which the industry will stand.

On this committee were H. H. Rice, Cadillac, chairman; R. D. Chapin, Hudson and Essex; A. R. Erskine, Studebaker; C. C. Hanch, H.C.S.; W. E. Metzger, Columbia; W. T. White and A. J. Brosseau, Mack.

Members of the committee were agreed that neither the Federal nor the municipal governments should have anything to say in the matter of motor taxation; that the State not only should handle the matter, but also determine in what form this special taxation should be imposed.

Local Problems Considered

Illustrating this point, it is pointed out that the needs or desires of one State might favor registration fees based upon horsepower or weight or a combination of these two factors, while in another State motor fuel taxation, either alone or in combination with other forms of special taxes, might be approved.

"As for the size or total of these special taxes to be levied upon the motor vehicles of a State in any one year, the total never should in any one year exceed the sum necessary for the administration of the State Motor Vehicle Department or the maintenance of the improved highways of the State," emphasizes the report.

Simplification Efforts Reported Going Forward

WASHINGTON, Sept. 17—Efforts on the part of the Department of Commerce to bring about standardization and simplification in certain lines of industry are meeting with success, according to a report made by the Fabricated Production Department of the Chamber of Commerce of the United States, with which the Department of Commerce is cooperating.

Of those lines in which the automotive industry is interested, it is stated

N. A. C. C. DIRECTORS ADOPT TAXATION PRINCIPLES RECOMMENDED BY SPECIAL COMMITTEE

NEW YORK, Sept. 17—A special committee of the National Automobile Chamber of Commerce appointed to investigate the question of State taxation of motor vehicles has reported the following principles, which it considers fundamental:

1. The State should be the sole special taxing agency—Federal, county and municipal governments should be excluded from the field.
2. There should be but one form of special taxation of the motor vehicle.
3. The total amount of special taxation should be limited to the sum of money necessary for—
 - (a) The administration of the State Motor Vehicle Department.
 - (b) The maintenance of improved highways of the State.
4. The term "maintenance" and the items which it should include should be sharply defined and strictly limited in application.
5. No money derived from special taxation of the motor vehicle should be spent for maintenance of highways unless such highways are located where the highway transport needs of the State require it and unless such highways are built of materials and in a manner to meet these needs.
6. The total amount of such justified special taxes should be raised in a manner which most equitably distributes the cost among the various classes of vehicles and the units within each class.
7. All money raised by such special taxes should be placed in the State Motor Vehicle Highway Maintenance Fund and, to secure the best results, spent by the State or under State supervision on the improved highways in the order of their importance and in accordance with their maintenance needs.
8. Irrespective of the particular form of special taxation any State may adopt—whether annual registration fees based on horsepower, weight or similar factors; or motor fuel taxes—the aggregate amount of these special taxes upon the motor vehicle in any one year should not be more than is necessary to
 - (a) The administration of State Motor Vehicle Department.
 - (b) The maintenance of Improved Highways of the State.

that initial efforts in the way of simplification have been directed toward roller bearings, spark plugs, tires and storage batteries.

A simplification program for paints and varnishes has been adopted by that industry which will reduce the varieties of containers used in marketing the commodities and also eliminate many colors and shades of paints, stains, enamels and varnishes, this action to become effective Dec. 31, 1923.

Road builders will be benefited by the reduction in the varieties of asphalt grades from 102 to ten. Certain definite penetration limits have been established for paving asphalt, sheet asphalt and block filler, to become effective Jan. 1, 1924.

PACKARD SUES DETROIT CITY

DETROIT, Sept. 14—Packard Motor Car Co. has filed suit in the county court here against the city of Detroit for \$73,552, declared collected in excess of the company's taxable valuation. The company's holdings of Liberty bonds and other non-taxable securities are shown as \$12,270,241, and its taxable property is placed at \$6,541,620. Total indebtedness was declared to be \$9,391,045.

UNIFORM LAWS DISCUSSED

PEORIA, ILL., Sept. 14—Uniform traffic ordinances throughout the State are being discussed here this week at a meeting of mayors and city officers from all over Illinois.

Gasoline Prices Drop 3.27 Cents in Month

NEW YORK, Sept. 18—Effects of the bomb exploded by Governor McMaster of South Dakota continue to be felt in the oil industry, and gasoline prices are coming down gradually. A cut of one cent a gallon along the Atlantic Coast was announced today by the Standard Oil Co. of New Jersey, while this example has been followed by the Gulf Refining Co. and the Texas Co.

This reduction has not been confined to the East, reports showing that in the last thirty days the average tank wagon price in thirty representative cities has reached a new low of 15.81 cents, a decrease of 3.27 cents from the average price of 19.08 cents July 30 and a total reduction of 5.30 cents from the high of 1923.

The Wall Street Journal, in its analysis of the situation, says:

Present average price indicates a saving to the consumer of 13.49 cents a gallon, compared with the 1921 high average price of 29.3 cents, and applied to consumption at the July rate of 16,048,082 barrels, equals \$90,992,624 a month, or, roughly, \$3,000,000 a day.

The season of decreased consumption now entered, even with the vast number of automobiles on the roads and the greater use of closed cars throughout the Winter, is expected to mean a wider spread between production and demand and result in still further accessions to the stocks of gasoline, which

(Continued on page 610)

Premier Will Build 7-Passenger Sedan

Strattan-Premier, Exhibited at
Last New York Show, Has
Been Discontinued

INDIANAPOLIS, Sept. 18.—An additional model, a seven-passenger sedan with a McFarlan body, listing at \$3,385, is announced by Premier Motors, Inc. This rounds out a line which includes a seven-passenger phaeton at \$2,585; a five-passenger phaeton at \$2,535; a five-passenger sport model at \$2,635 and a roadster at \$2,535. In addition the company is building the Premier taxicab, listing at \$2,400.

There has been a thorough reorganization since the receivership of the company was lifted last June. The name has been changed to Premier Motors, Inc., and F. I. Barrows has been continued as president, with I. F. Schaeffer as vice-president.

The dealer organization is being rebuilt and at present there are fifteen representatives throughout the country. Production of passenger cars is going on in a limited way, while the plant is turning out six taxicabs a day.

The Strattan-Premier, the low-priced model exhibited at the last New York show, has been discontinued and the reorganized company will devote its whole attention to the line it now has in hand. The Monroe car has no connection whatsoever with the Premier company, although the Monroe company occupies two wings of the Premier plant.

Boston Mayor Opens M. A. M. A. Convention

(Continued from page 599)

Committee for sending its representatives into every state in the union to co-operate with representatives of the industry and motorists' associations in combating unjust legislation.

An added speaker was President N. H. Oliver of the Automotive Equipment Association, who urged the equipment branch of the industry to take advantage of the opportunities to be found in promoting an automotive Christmas.

The relations of manufacturers with jobbers was discussed at the session tonight. It was the first time the association has turned its attention to the problems of jobbers.

Car and Truck Owners Hear Meixell in Boston

BOSTON, Sept. 18.—Representatives of motor organizations, National and State and owners of trucks and cars met here today and spent four hours discussing legislation, headlights, regulation of buses and trucks, special taxes and insurance. Harry Meixell of the National Motor Vehicle Conference outlined the

scope of the meeting and the necessity for numerous gatherings throughout the country to formulate a concrete policy to present to their legislatures.

He pointed out that this year forty-three legislatures had up for action 2500 laws relating to motor vehicles.

The question of taxes for highway maintenance was gone into fully. Reasonable taxes for road up-keep were not opposed, but the consensus was that if taxes continued to increase the question of double taxation should be referred to the Supreme Court.

Compulsory insurance came up for discussion and the question of State insurance along the lines of the Workmen's Compensation Act was threshed out but the meeting did not go on record on these subjects.

On the question of motor transportation and the railroads the talk centered around control and regulation of the commercial vehicles.

Miller Will Equip Moon with New Balloon Tires

ST. LOUIS, Sept. 20.—The Moon Motor Car Co. last week announced that it would equip all cars in the future with balloon tires. This step was taken after due consideration by the engineering department of the company and an arrangement was made with the Miller Rubber Co. to furnish the Moon factory with a limited number of sets of balloon tires.

The Moon organization has obtained special disteel wheels for all models and the factory announcement to dealers states that equipment will be furnished on the following basis.

Model 6-40 and 6-50 equipped with (5) 29 x 4½ disteel wheels and (5) 30 x 5 balloon tires at an extra cost of \$160 subject to regular dealer discount.

Model 16-58 equipped with (5) 29 x 4½ disteel wheels with (5) 32 x 6 balloon tires, at an extra cost of \$160, subject to regular discount.

4-Wheel Brake Adopted as Marmon Equipment

INDIANAPOLIS, Sept. 17 — Front wheel brakes are now furnished as optional equipment on Marmon cars at \$125 additional list. The new brakes are connected with the standard rear wheel linkage, which is unchanged in the application, except for an extension on the brake pedal, employed to actuate the front wheel linkage. The new brakes are internal expanding.

In developing the design, one of the factors that has been given major consideration is light foot pressure. The Marmon design utilizes the wrapping principle in this brake to reduce the pedal pressure necessary to apply. The shoe assembly rests against three supports, being drawn inward against these supports by the tension of three springs. Each support is adjustable and can be used in regulating the clearance between the brake band and the drum.

Haynes New Engine Improved Over Old

Crankshaft Redesigned and Made
Larger—Other Changes and
Refinements

KOKOMO, IND., Sept. 17.—The Haynes Model 60 engine, which powers the 1924 cars, has a number of mechanical changes and refinements over the previous Model 57 engine. The crankshaft has been redesigned and is larger throughout. A redistribution has been made of the metal so as to give greater rigidity, and weight has been added to four cheeks of the shaft to facilitate balancing.

The diameter at the main bearings is 2½ in., and the connecting rod bearings are 2¼ in. An additional oil slinger has been added at the rear of the shaft. Light weight iron pistons are now being used with four piston rings located above the piston pin.

The bore of the engine remains 3½ in., but the stroke has been shortened ¼ in., making it 4¾ in. The connecting rods have been lengthened 3/16 in. The oil pump is now mounted on the right hand upper portion of the crankcase and is driven by means of helical gears from the auxiliary or water pump shaft. The pump now has an adjustable oil pressure regulator integral with the pump cover, and an oil pressure gage is mounted on the instrument panel. Oil is fed by direct pressure lines to the main bearings of the crankshaft, and the main bearings have annular grooves, which distribute the oil over the bearings. The overflow from the regulator feeds the connecting rod dipper troughs. All the oil lines with the exception of the distributor tube in the lower half of the crankcase are on the outside of the engine.

Accessibility Greater

Composition timing gears are used on the new engine, and a larger water pump with a larger shaft is provided. It is more accessible for repacking and has oil fed to it direct from the pump overflow. The fan drive pulley is now mounted on the crankshaft.

The distributor and coil are now mounted at the front end of the engine on the oil pump body cover, and the distributor is driven through the oil pump shaft. The distributor and throttle are now controlled by positive rods instead of wires. The power plant is now mounted on spring leaves at the front end.

NEW STEWART SHOCK ABSORBER

CHICAGO, Sept. 19.—The Stewart shock absorber is the latest addition to the Stewart-Warner line of automotive equipment. Simplicity of installation, minimum need for readjustment and velvety rebound are claimed for the new device, which will shortly be in production.

All Makers of Tires Likely to Cut Prices

Probable Move Will Follow That Taken by Firestone and United States Rubber

AKRON, Sept. 20—Another tire price cutting movement, initiated by the Firestone Tire & Rubber Co., and quickly followed by the United States Rubber Co., with strong probabilities that before the week is over nearly every other major tire producing concern will follow suit, has catapulted the tire industry into another upheaval, the consequences of which, admittedly, even tire manufacturers themselves are afraid to conjecture.

With tire dealers throughout the country uniting in the complaint that the last general tire price cut hurt their business more than it helped it, and with tire manufacturers admitting themselves that the August price reductions reacted in a manner exactly opposite to what had been anticipated, and caused a backing up of tire sales instead of a stimulation of them, men close to the industry say it is difficult to figure the psychology of the price cuts just announced.

Apply to Ford Sized Tires

Firestone's cuts apply only to Ford sized tires, and are understood to range from 11 to 18 per cent. Hardly had the wires carried confirmation of the Firestone cuts than the United States Rubber Co. announced reductions ranging from 12½ to 22½ per cent on all Ford sized tires.

Incidentally, in announcing its price cuts, U. S. Rubber, according to dealers, did not issue to dealers or to the public any new consumer price lists based upon the reduced wholesale schedules.

This can mean several things, it is admitted. It may mean the creating of an opportunity for tire dealers themselves to engage in a cut-throat price war and try to undersell each other, and on the other hand, it may mean the first definite exploitation of the advocacy, championed to a considerable extent by dealers themselves, that tire companies should abolish consumer price lists altogether.

Reductions Retroactive

In announcing its price cuts U. S. Rubber, it is announced, is rebating its dealers back to Aug. 15 on all Ford sized tires. Whether other tire companies which confidently are expected to follow the lead will also make their price revisions retroactive to Aug. 15 is problematical.

Manufacturers, admitting that they have failed utterly in several recent cases to gauge accurately the effect of tire price cuts upon the motoring public, are regarded as waiting for results on these last price cuts without conjecturing the outcome either one way or the other.

The effect of the last general price reduction was to back-up sales, motorists holding off on purchases in anticipation of other cuts. Whether this last move will satisfy them and will stimulate sales again is something only the actual results will tell.

Tire production in the Akron district is considerably lower than three months ago, and no company is adding to its factory force, or planning an increased production ticket this fall until present stocks are liquidated sufficiently to warrant a revival of peak manufacturing activities.

Firestone output has dropped from a peak a few weeks ago of over 25,000 casings a day to less than 15,000, it is unofficially reported. A bulk of Firestone business has been original equipment for Henry Ford. Miller, Goodrich, Goodyear and other companies have been laying off fabric cutters and tire builders and will not commit themselves as to plans for the immediate future.

The Mason Tire & Rubber Co. of Kent is still pushing its campaign of cash-to-dealer business, and until its heavy finished goods inventories are reduced will probably not resume manufacturing activity on any great scale. The General Tire & Rubber Co. is going strong.

Hudson \$75 to \$100 Lower; Super-Six to Be Only Model

DETROIT, Sept. 18—The Hudson Motor Car Co. has reduced prices on all models, the drop ranging from \$75 on the five and seven-passenger phaeton and coach to \$100 on the sedan. Eighty dollars is taken from the five-passenger phaeton. Prices on the Essex are not affected.

In making the announcement of lower prices the company declares that these are effective for the 1924 season and that, despite rumors, the only Hudson to be produced in the coming season will be the present super-six models.

The new price list is as follows:

	Old Price	New Price
5-passenger phaeton..	\$1,375	\$1,295
7-passenger phaeton..	1,425	1,350
Coach	1,450	1,375
Sedan	1,995	1,895

Employment Increases in Tire Making Plant

WASHINGTON, Sept. 18—A general increase of 13.7 per cent in the number of employees in the automobile tire making plants is noted by the monthly survey of the United States Department of Labor on employment in selected industries in August.

The figures for the month were compiled from reports of 6589 representative establishments in 51 manufacturing industries and show a general decline of 0.02 per cent in the number of employees.

Comparing August of this year with August of 1922 the figures show a decrease of 18.1 per cent in the number of employees engaged in the tire manufacturing industry.

British Morris List Reduced 17 Per Cent

Announcement Also Made That Only Two Four-Cylinder Models Will Be Built

LONDON, Sept. 11 (by mail)—Something approaching a sensation has been caused in competitive trade circles by the new prices announced for the Morris cars, which now have the largest output of any British make, 500 to 600 a week. The cuts represent an average reduction of 17 per cent.

The four-cylinder models are reduced to two in number, viz., 11.9 hp. and 13.9 hp. with engines of respectively 94 and 109 cu. in. capacity; both have a track of 48 in. and wheelbase of 102 in.

On the larger type a fuller equipment is given, including a driving mirror, two horns, Gabriel snubbers, leather upholstery and three-panel front screen, while the phaetons have a four-panel rear screen and apron.

Both types have several accessories not usually included with British cars of this size and price; for example: spring gaiters, clock, Boyce Motometer, spare gasoline can and carrier, and a half-gallon tin of lubricating oil.

Representative new prices as compared with the old are as follows:

	11.9 H.P.	
	Old Price	New Price
Chassis	£195	£160
Roadster	255	198
Phaeton	275	225
	13.9 H.P.	
	Old Price	New Price
Chassis	£245	£195
Roadster	355	300
Phaeton	390	320
Coupe	415	355

Short Working Month Will Cut Down Output

(Continued from page 598)

There has been some improvement in truck output and sales, this branch of the industry picking up from the falling off noted the latter part of the summer. The betterment, naturally, is a slow process and manufacturers are proceeding cautiously with production program. Unsettled farm conditions have retarded the development expected earlier in the year and much of the future progress will depend upon a more wholesome tone given to the farmer's purchasing disposition.

Of late, a more encouraging outlook has been apparent in agricultural areas, with somewhat of a quickening of interest. The Southeast reports improvement and sections of the Middle West hold out prospects for increased sales of automotive products.

New York Car Sales Declined in August

But Total for the Eight Months of
This Year Is Well Above
1922 and 1921

NEW YORK, Sept. 19—Statistics compiled by Sherlock & Arnold, publishers of the *Automobile Sales Analysis*, show a further decline in new car registrations in the metropolitan district during the month of August. Total registration for the eight months, however, is well ahead of the same period in 1922 and 1921.

The figures show 67,177 new cars registered so far this year, as against 54,501 for the eight months in 1922 and 35,031 in 1921.

Low and medium priced cars in August aggregated 6531, against 5921 in 1922 and 4255 the year before.

Higher priced cars, however, continued to drop behind registrations of last year. Up to June monthly registrations were in excess of the same months in 1922, but in June registrations totaled 732, as compared with 865 in June of 1922; July, 653 as against 678 in the same month the year before, and August, 469 contrasted to 516 in August of 1922.

In the low and medium priced class, three cars maintain the lead for the eight months, with registrations greater than 5000. The others are above 2000 and eight others above 1000. In the higher priced field two makes show registrations exceeding 1000, three others are above 400 and four additional are greater than 100.

Registrations this year by months is as follows:

Month	Medium and Low Priced	Higher Priced
January	2,814	201
February	2,801	580
March	8,102	769
April	11,124	1,106
May	11,287	992
June	9,782	732
July	9,234	653
August	6,531	469
	61,675	5,502

Detroit Registrations Were 5270 Last Month

DETROIT, Sept. 17—New cars registered in Detroit during August totaled 5270, as against 5617 in July, and trucks, 466 as against 526, according to the bulletin issued by the Detroit Automobile Dealers Association. Open cars in August outnumbered closed deliveries by 3058 to 2212, which compared with open and closed totals in the preceding month of 3025 and 2592.

Ford deliveries gained about 100 in July, the total being 2578, of which 1459 were open. Chevrolet ranked next in total deliveries, with 580, which compares with 727 in July. Buick with 365 deliveries was 299 ahead of July. Stude-

baker's 257 was slightly under the July total of 281. Maxwell delivered 153, two less than July. Jewett with 121, Essex with 116 and Hudson 102, compared with 154, 168 and 176, respectively, in July.

Comparisons of August and July totals of other leading companies show Overland, 99 as against 195; Willys-Knight, 91, 183; Dodge Brothers, 88, 72; Star, 84, 157; Oakland, 73, 97; Rickenbacker, 67, 92; Hupmobile, 64, 65; Nash, 55, 56; Durant, 49, 88; Cadillac, 31, 23; Cray, 34, 49; Packard, 28, 42; Reo, 26, 26; Columbia, 17, 14; Chalmers, 17, 19; Paige, 16, 20; Peerless, 15, 7; Jordan, 15, 20; Lincoln, 12, 18; Earl, 12, 13; Oldsmobile, 10, 33.

Ford's share of the truck total was 309 as against 350 in July. Chevrolet had 34 as against 16 in July; Reo, 19 as against 35; Dodge Brothers, 15, 19; White, 12, 8; Fifth Avenue, 12, 3; Federal, 10, 25; Mack, 7, 9; Gotfredson, 7, 7; G. M. C., 6, 13; U. S., 4, 2; Standard, 3, 6; Service, 3, 1. Each of the following companies made two deliveries: Armleder, Autocar, Commerce, Graham, International, Kelly, Wilson.

73,755 Cars in Service in France During 1922

PARIS, Sept. 11 (*By mail*)—An increase of 73,755 automobiles in service in France is shown for the year 1922, according to Government figures just issued. The total number of automobiles in France at the end of the year 1922 was 360,937, this including passenger cars and trucks, but excluding motor cycles and sidecars.

On the latest census returns the number of automobiles per thousand inhabitants is 9.2, compared with 6.3 twelve months earlier. The Department having the greatest proportion of automobiles is the Aisne, with 16.9 per thousand. The Seine region, which includes the city of Paris, follows with 16.5 per thousand.

British Plan Car Week to Advance Own Product

WASHINGTON, Sept. 17—British automobile manufacturers are greatly concerned over the outcome of the reparations issue because of its effect on foreign trade. Some fear is expressed that the present controversy may tend to end the season's automobile trade abruptly, especially on the continent.

According to advices received from the American Trade Commissioner at London, British manufacturers are planning "British Car Week" during which, by advertising and demonstrations, attention would be called to their particular cars. They are also endeavoring to stimulate trade in the British colonies.

A representative of a large British manufacturing concern has left for South Africa with a large shipment of cars, special provision being made to eliminate the "spares" difficulty. British exports of complete motor cars increased during July.

Car Output Decline Predicted by Bank

It Sees High Relative Activity,
But Not Reaching Volume
of Spring Months

CLEVELAND, Sept. 18—Estimates made by the Cleveland Trust Co. show that during the last four years automobile expenditures amounted to \$6,600,000,000, and those for new buildings about \$10,000,000,000, which leads the bank to remark that "the American people are spending two dollars for automobiles for every three dollars of outlay for new buildings."

"Whether or not these relative proportions are for the best good of the nation, and whether or not they will be substantially maintained in the future, are questions which it seems impossible to answer now," continues the bank. "What seems clear is that the peaks of production records have been reached, and that declining volumes of output are to be expected in both industries in the coming month."

The bank says further:

The period of business recovery that got well under way in 1922 and reached its peak of prosperity in the early months of 1923 had as its most important elements the building boom and the great activity of automobile plans. The prospective declines in these activities will be more than seasonable.

They will represent the recession from high levels that could only be reached in time of great business prosperity and that were too high to be maintained. As these volumes of output shrink, the effect will be felt in scores of related lines of manufacturing. In both lines high relative activity is to be expected for a long time to come, but not of the sort that was in evidence last spring.

The bank adds that the approach of fall has brought an increased demand for iron and steel and that automobile manufacturers have been buying sheets and other material in larger volume than has been the case at any time in the past sixty days.

30-Cent Cotton Promised Before End of September

ATLANTA, GA., Sept. 17—While it had been announced previously that August was an unusually good month for Atlanta distributors and dealers, definite figures announced last week indicate sales to have been even greater than earlier indications portended.

A steady advance in cotton prices the last week amounting to about \$15 per bale will help sales materially in the rural districts, and already distributors in Atlanta are being besieged by mail, telephone and telegraph by their dealers asking for more cars. A price of 30 cents per pound for cotton is promised before the end of the month, which will be an increase of \$25 per bale in one month's time, or about \$250,000,000 increase on the total crop.

French Talbot Wins Boulogne Road Race

Team Appears with New Jobs on
Line of Sunbeam Grand
Prix Winners

PARIS, Sept. 11 (by mail)—An average speed of 67.2 m.p.h. was made by a four-cylinder 91.5 cu. in. French Talbot, driven by H. O. D. Segrave, in the 278.5 mile road race at Boulogne.

This was the first appearance of the team of Talbots, which are entirely new jobs designed by Vincent Bertarione on the same lines as the six-cylinder 122 cu. in. Sunbeams which won the French Grand Prix at Tours.

The feature of the engine is the use of roller bearings for all parts but the wrist pins. The cars ran without a differential.

The Talbots proved themselves superior in speed to all other competitors, and appear to be the fastest cars of their class at present in competition work in Europe. K. Lee Guinness, after an initial lap at an average of 70.7 m.p.h., standing start, went out on his Talbot with a broken ball race in the rear axle.

Albert Divo, on the third Talbot, was a close second to Segrave until 30 miles from the end, when he was forced out by reason of the breakage of the rubber coupling on his magneto drive shaft.

The Boulogne course being hilly and winding, the cars could not display their maximum speed, and excessive camber on the really fast switchback stretch made it dangerous to drive these 1100 pound cars all out. Segrave made a record lap at 72 m.p.h. Maximum speed of these cars on the level appeared to be in the neighborhood of 105 m.p.h.

In the 67 cu. in. class Benoist, on a four-cylinder Salmson, finished first at an average of 62.6 m.p.h., being faster than all the 91.5 cars with the exception of Segrave's Talbot. Bueno on a similar Salmson was second.

Winner in Boillot Cup Race

PARIS, Sept. 10 (by mail)—Driving a six-cylinder four-passenger sporting type Hispano-Suiza, Garnier, an automobile dealer of San Sebastian, averaged 70.7 m.p.h. in the 278.5-mile road race for the Georges Boillot cup held at Boulogne. Boyriven, on a similar Hispano-Suiza, was second, 25 min. 38 sec. behind the leader.

Although putting up the fastest time, the Hispano-Suizas lost the Georges Boillot cup, on a handicap basis, to Pisart, a Chenard-Walcker dealer, who carrying his wife as "mecanicienne," averaged 58.2 miles an hour with a 138 cu. in. four-passenger Chenard-Walcker.

NEW BUS LINE IN NEW YORK

NEW YORK, Sept. 17—The Unique Bus Service has been organized with a nominal capital stock of \$100,000, to operate a five-cent bus line in Brooklyn

and Manhattan. Irving Heller, 5605 Fifteenth Avenue, Brooklyn, is named as president of the company, which plans to put 100 buses of the London type in the service. The latest type of London bus, as developed by the London General Omnibus Co., does not differ radically from New York's Fifth Avenue buses. It has a wheelbase of 186 in. and seating capacity for fifty.

Air Pilot Makes Record Over Kilometer Course

NEW YORK, Sept. 17—Preparing for the Pulitzer cup races which are scheduled for Oct. 1 to 3 at St. Louis, Lieutenant H. J. Brow of the Naval Air Service, showed an officially recorded speed of 244.15 m.p.h. over a measured one kilometer course at Mitchel Field, near Mineola, L. I., last Thursday.

In this demonstration he piloted a Navy-Curtiss racing plane and beat the best previous mark of 238 m.p.h., made only a few days before by Lieutenant L. H. Sanderson of the United States Marine Corps.

Brow established his record without taking advantage of a drop to gain momentum at the start. On one leg of the course, with the wind on his back, Brow is credited with a speed of 255 m.p.h., the fastest man ever has traveled. A feature of the trial was the landing speed of 70 m.p.h., for which the use of double camber or convex wings, is given credit.

Federal Aid Highways Now Total 23,792 Miles

WASHINGTON, Sept. 17—A total of 23,792 miles of Federal aid highway construction had been completed on Aug. 31, at a total cost of \$414,000,000, according to figures compiled by the United States Bureau of Public Roads.

Texas, with a total of 2,357 miles, leads the other States in Federal highway construction, having completed this amount of mileage since July, 1916, when the first of the Federal aid funds were made available to the States.

Minnesota, with a total of 1917 miles, and Wisconsin with 1077 miles, rank second and third in the order named.

The statement of the bureau shows that at the present time there is a total amount of \$277,955,000 on hand, which will be expended by the 48 States for highway construction between now and July 1, 1924.

Milestone in All Cities Is Suggestion of A. A. A.

WASHINGTON, Sept. 18—The American Automobile Association is advocating an official milestone for every city and town in the United States from which local distances can be measured. The designation of an official central point in each city by the proper municipal authorities will be of value commercially as well as a convenience to local and visiting motorists, the A. A. A. points out.

No Big Merger Move Seen by Economist

Also Says Trend in Industry Is
Toward Integration of
Supply Source

BOSTON, Sept. 17—Declaring that the tendency of the industry is toward the integration of the immediate source of supply, and that there is not much likelihood of any extensive movement in the direction of combinations of the smaller manufacturers, C. C. Edmonds of the University of Michigan analyzes the situation, as he sees it, in the September issue of the *American Economic Review*.

Edmonds gives the histories of General Motors, Durant Motors and the Ford Motor Co. at length, and the others as a whole, following which he summarizes as to integration, combination and monopoly as follows:

INTEGRATION—The tendency of the industry is toward the integration of the immediate sources of supply. No attempt has been made, except by the Ford Motor Co., to integrate the sources of raw material, such as iron, lumber, coal, etc. The automobile industry uses but a portion of the total production of these industries, and the requirements of any of the individual companies would not warrant integration on their part. There is no probability that the integration of the immediate sources of supply will be carried to the point of eliminating the stronger parts makers.

COMBINATION—There have been a number of cases of combination among the independents, but the producers involved were of relatively small size. There are a number of factors present in this section of the industry which would be favorable to more extensive combination, but the presence of other and adverse conditions renders it unlikely that any extensive movement in this direction will take place.

G. M. Outstanding Combination

The General Motors Corp. is the outstanding combination in the automobile industry. It has already secured control of the various companies necessary for its efficient operation and any further extensive additions by it are unlikely. The recent development of the Durant Motors, Inc., is based primarily upon the personal reputation and skill of Mr. Durant and the successful completion of the project depends largely upon his efforts. The companies combined are new, except the Locomobile company, and their ability to withstand competition is yet to be determined.

MONOPOLY—The competitive situation in the industry warrants the conclusion that, except in the case of the Ford Motor Co., no company has either complete or monopoly power. The presence of numerous strong and active competitors and the peculiar character of the demand for automobiles indicate little possibility of the development of monopoly by any one company or group of companies. The Ford Motor Co. produces approximately 95 per cent of the cars in its class, and therefore has a virtual monopoly of its field. Its tremendous resources and its manufacturing efficiency are all factors which should assist it in maintaining this position against possible competitors.

Many Aces Entered for St. Louis Meet

**Air Event, Lasting Three Days, Is
Headed by Contest for
Pulitzer Trophy**

ST. LOUIS, Sept. 20—Officials of the St. Louis Air Board have announced the entry of many famous aces for the air meet to be held here Oct. 1, 2 and 3.

Among them are Brack-Papa, Italian, flying Fiat racer; Lieut. A. Pearson, U. S. Army, Verville-Sperry racer; Lieut. J. D. Corkille, U. S. Army, Curtiss racer; Lieut. W. Miller, U. S. Army, Curtiss racer; Lieut. S. W. Callaway, U. S. Navy, Wright racer; Lieut. L. H. Sanderson, U. S. Marine Corps, Wright racer; Ensign A. J. Williams, U. S. Navy, Curtiss racer, and Lieut. H. J. Brow, U. S. Navy, Curtiss racer.

It is also expected that Larry Carter, winner of the British air derby and his Napier-Gloster plane and possibly Sadi Lecoq, the French ace, will also be added to the list.

Eight Contests Opening Day

The program, which will cover three days, is headed by the race for the Pulitzer trophy and in addition seven other important contests, in which trophies valued at \$25,000 and \$9,300 in cash prizes will be the attraction. These events are as follows:

Oct. 1. Two-seaters, 90 hp. or less, for Flying Club of St. Louis Trophy; civilians only, \$1,000. Same day, observation planes for Liberty Engine Builders' Trophy, military only, \$1,500.

Oct. 2. Light commercial handicap planes, of 200 hp. or less, for Aviation Club of Detroit Trophy, civilians only, \$2,000. Same day, large capacity planes, for Merchants' Exchange of St. Louis Trophy, civilian and military, \$2,000; and a model race for the Mulvihill Trophy, members of the Junior Flying League, National Aeronautic Association, \$300.

Oct. 3. Air mail planes, for Detroit News Air Mail Trophy, United States air mail pilots, \$1,500. The Pulitzer Trophy race, civilian and military, for Pulitzer Trophy and \$4,000.

Preceding the above program on Sept. 20 to 30 there will be the "On To St. Louis Race" for civilians only for the St. Louis Chamber of Commerce Trophy and \$1,000.

Exhibitions of Aircraft

In addition to the regular program, there will be exhibitions each day of various types of aircraft which recently have won distinction. Among these will be the Barling bomber.

Col. Paul Henderson, second assistant Postmaster General in charge of the U. S. Air Mail Service will send ten of his best flyers to the meet.

The Third National Aero Congress and Air Institute, composed of those persons who are interested either from a practical or a scientific viewpoint will hold

sessions at the Statler Hotel during the races. On Monday night, Oct. 1, the banquet will be held at which cabinet members, Congressmen and other notables will speak. The annual smoker of the National Aeronautic Association will be held Oct. 3.

FINANCIAL NOTES

Auto Body Co. of Lansing, in a balance sheet as of July 31, shows net earnings of \$117,704 for the first seven months of the year, reducing the net deficit of the company from \$623,897 on Jan. 1 to \$506,193. Total current assets July 31 were \$543,683 and current liabilities \$614,513. In a brief comment on the report the company says it has had a busy year to date, but expects lighter operation in the latter months. Substantial contracts are reported for next year and the company also advises of the acquisition of recent orders from Reo on which it is now in production.

Hudson Motor Car Co., reporting for the quarter ended Aug. 31, states that net income was \$2,934,868 after charges, taxes and depreciation, equivalent to \$2.44 a share earned on the outstanding 1,200,100 shares of capital stock. This compares with \$3,656,218 after taxes in the same quarter of 1922.

Edmunds & Jones Corp. has declared an extra dividend of fifty cents on the common and the regular quarterly dividend of 50 cents on the common and 1¼ per cent on the preferred, payable Oct. 7 to stock of record Sept. 20.

Rickenbacker Motor Car Co. has declared a 2 per cent dividend, payable Oct. 15 to all stockholders of record Sept. 30. This is the third quarterly dividend of the company this year.

Electric Auto-Lite Co. has declared its regular quarterly dividend of \$1, payable Oct. 1 to holders of record Sept. 19. Net earnings for August are reported at \$234,000.

Gasoline Prices Drop 3.27 Cents in Month

(Continued from page 605)

declined 98,193,788 gallons to 1,165,389,340 gallons on July 31, latest figures available.

This represents fifty-four days' supply at the July rate of consumption, which might be expected to continue through August, reducing stocks 100,000,000 gallons, to a little above 1,000,000,000 gallons at the end of August.

The lowest price quoted on tank wagon gasoline was 12.5 cents at Des Moines, while the highest was 21 cents at Butte, Mont.

Iowa Stations Quote 14½ Cents

DES MOINES, IOWA, Sept. 15—Standard Oil Co. officials this week reduced the price of gasoline to 14½ cents at its stations, a 2-cent reduction from its previous "war" price.

BODY PLANT IN MISSISSIPPI

JACKSON, MISS., Sept. 22—A comparatively large plant to be devoted to the manufacture of automobile bodies of various types, is to be established at Jackson during the coming fall by F. K. Paxton, of Bristol, Tenn., and associates.

BANK CREDITS

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

Outstanding features of the present situation are improved buying, notably in textiles, a sharp downward reaction in stocks, and increased strength in commodity prices.

Spot cotton rallied sharply early in the week, but reacted later. Cotton textile prices are reported as showing definite improvement.

Buying of iron and steel has not been up to expectations. The present rate of steel output is estimated at about 41,000,000 tons a year, as against the August rate of 42,400,000 tons. The total production in August was approximately 3,679,441 tons, a slight increase over the July total, but the daily rate of 136,276 tons showed a decline of 3 per cent from July.

Car Loadings Increase

Car loadings for the week ended Sept. 1 were 1,092,567, an increase of 22,635 over the previous high record set the week before.

Production of crude petroleum in the week ended Sept. 8 was at the record rate of 2,280,700 barrels a day, against 2,261,800 barrels the preceding week, and 1,504,400 barrels for the corresponding week in 1922.

Bradstreet's figures of building permits show a total value for 150 cities of \$230,745,762 for August, the highest monthly total since May, and 10.2 per cent above the July figure. Compared with August of last year, the gain was 13 per cent.

Consumption of cotton by domestic mills during August was 491,604 bales, as compared with 461,575 bales in July and 526,380 bales in August last year. Cotton spindles active during August were 33,708,667, against 34,237,887 in July and 32,491,857 in August, 1922.

Discounts by the Federal Reserve banks declined \$8,700,000 during the week ended Sept. 12. The decrease was more than accounted for by bills secured by Government obligations, "other bills discounted" showing a slight gain. Total deposits rose \$34,100,000 and members' reserve accounts \$29,700,000. The circulation of Federal Reserve notes increased \$5,200,000 and reserves \$9,300,000, while the reserve ratio declined from 76.4 to 75.9 per cent.

\$63,000,000 More Loans

Loans of reporting member banks increased \$63,000,000 during the week ended Sept. 5, the bulk of the rise being in "all other" loans. Net demand deposits increased \$83,000,000, reserve balances with Federal Reserve banks \$2,000,000, and accommodation at Reserve banks \$36,000,000.

Call money opened at 5 per cent last week, moved up to 6 on Thursday with the demand for funds for mid-month tax payments, and later eased off to 4½ per cent. Time loan rates were firmer, 4 to 6 months' maturities moving at 5½ per cent.

Railway Containers Boost Door Delivery

Less Than Carlot Shipments Provided for in Detroit United Lines Plan

(Continued from page 600)

Shippers making use of the system may provide their own carriers if they choose. The company plans, as the system grows, to have unlimited supplies of the carriers, regular shippers having regular supplies, and the occasional shipper making arrangement for accommodation.

The company has no idea as to how many trucks it will use in operating its system. In the beginning several makes and types will be bought to be tried out.

The containers as now used are made both entirely closed or stake body, being built by Fisher Body Co.

Those Attending Demonstration

Witnessing the demonstration were the following railway officials:

S. L. Vaughn, vice-president and general manager, Grand Haven & Muskegon Railway, Grand Rapids, Mich.; A. C. Blina, vice-president and general manager, Northern Ohio Traction & Light Co., Akron, Ohio; F. W. Coon, vice-president, Lake Shore Electric Railway Co., Sandusky, Ohio; C. F. Smith, general manager, Toledo, Bowling Green & Southern Traction Co., Findlay, Ohio; Sam W. Greenland, vice-president and general manager, Indiana Service Corp., Fort Wayne, Ind.

J. H. McClure, operating manager, Columbus, Newark & Zanesville Electric Railway, Springfield, Ohio, and receiver, Indiana, Columbus & Eastern Traction Co., formerly part of Ohio Electric Railway; Robert I. Todd, president and general manager, Terre Haute, Indiana & Eastern Traction Co., Indianapolis; Charles L. Henry, president, Indianapolis & Cincinnati Traction Co., Indianapolis; Joseph H. Alexander, Cleveland; G. T. Seely, general manager, Pennsylvania Ohio Electric Co., Youngstown, Ohio; J. W. Lowry, Indiana Service Corp., Fort Wayne, Ind.

J. F. Collins, vice-president and general manager, Michigan Railroad Co., Jackson, Mich.; T. A. Kinney, vice-president, Northern Ohio Traction & Light Co., New York City; R. A. Crums, vice-president, Dayton & Troy Electric Railway Co., Dayton, Ohio; E. Smith, general manager, Toledo, Findlay & Fostoria Railway, Fostoria, Ohio; F. D. Carpenter, president and general manager, Western Ohio Railway, Lima, Ohio.

H. A. Nicoll, general manager, Union Traction Co. of Indiana, Anderson, Ind.; Harry Reed, president, Interstate Public Service Co., Indianapolis; B. J. Denman, president, Tri-City Railway Co., Davenport, Iowa; J. A. Cleveland, general manager, Saginaw-Bay City Railway Co., Saginaw, Mich., and Charles Currie, Cleveland, Ohio.

TO MAKE RAIL CAR AT TAMPA

TAMPA, FLA., Sept. 17—The Whiting Railway Motor Car Co., organized here recently, has obtained a site and will

start construction of a factory at an early date for the manufacture of gasoline propelled cars for railway passenger service, it is announced by J. A. Whiting, vice-president of the company, and originator of the car. Whiting formerly manufactured a car of this type at Waycross, Ga., some of which are in use on southern roads.

INDUSTRIAL NOTES

National Lead Co. has purchased the entire properties at Cartersville, Ga., of the National Pigment & Lead Co. of that place, the deal being consummated at St. Louis and involving several hundred thousand dollars. The former company thus comes into possession of one of the most valuable and extensive deposits of barytes in the United States, which is primarily used in the manufacture of paints and automobile tires.

National Convertible Body Co., formed recently at Knoxville, Tenn., will establish at once a plant for the manufacture of convertible bodies for Ford cars, having an initial capacity of 20 bodies per day, it is announced by B. D. Hammond, president of the company.

Tiger Tire & Rubber Co., Baltimore, recently incorporated, plans to build a plant at Havre de Grace, Md., for tire manufacture.

Government Plans to Test Reclaimed Rubber Effects

WASHINGTON, Sept. 15.—It is the intention of the Bureau of Standards to conduct an investigation to determine the effects of various percentages of reclaimed rubber in the material used for automobile tires. This program will commence with a series of service and laboratory tests to determine the relative resistance to abrasion of tires having various percentages of reclaimed rubber in the tread stock.

For carrying out this part of the work, fifty experimental cord tires will be used. They have the tread made up in four sections containing 0, 10, 18 and 25 per cent. of reclaimed rubber. Forty of these tires will be tested on delivery cars belonging to the Postoffice Department and operating on different types of roads. Preparations have been made for laboratory abrasion tests of the four-tread stocks using vehicles of four different designs.

The object of this particular work is to compare the results given by each vehicle with the results of road tests and to select for future use that type of vehicle which gives the best results.

C. E. MATHEWSON DEAD

STAMFORD, CONN., Sept. 18—Clifford Earl Mathewson, secretary and treasurer of the Norwalk Tire & Rubber Co., died here Sunday after a long illness. Mr. Mathewson formerly was affiliated with the Diamond Rubber Co. on the Pacific Coast, coming here nine years ago to found the Norwalk company.

METAL MARKETS

Orders emanating from automotive consumers are chiefly responsible for the relatively cheerful attitude of steel producers. Were it not for these automotive purchases and a fairly decent demand for tin plate, there would be felt keen disappointment because of the nonfulfillment of the general expectation that the middle of September would witness a marked reawakening of the consuming demand for heavier steel products. Consumers of the latter are still apathetic. Purchases by passenger motor car builders are by no means spectacular, month to month, if not hand-to-mouth, buying predominating, but in contrast to the stagnant condition for most other steel products, that for automotive steels is brisk.

There are sheet rollers who ascribe the strength of sheet prices to the firmness of the semi-finished steel market, sheet bars having held at actually \$42.50, Pittsburgh, for the last four or five weeks and nominally at that level for a much longer period. Such reasoning, however, if sincere, is faulty. In sheet bar transactions buyers, as a rule, are protected against price reductions by the seller until completion of shipments. If a bar mill sells to-day sheet bars at \$42.50 for shipment a month hence and reduces its price to \$40 on the day before shipment, it would not invoice them at higher than the \$40 price, although the order was booked at \$42.50.

In spite of this guarantee against seller's own price reductions before shipment, some sheet rollers hesitate to commit themselves at this time for sheet bars because the guarantee against sellers' own price reductions does not protect them from shrinkage in the value of their own sheet bar holdings through market declines. The ease with which shipments of sheet bars can be secured makes it obvious that the market's steadiness rests solely on the acquiescence of non-integrated sheet rollers in prevailing sheet bar prices.

They would much rather pay a few dollars a ton more for sheet bars than to "rock the boat" by depressing the price for their raw material and run the risk of sheet buyers exerting corresponding pressure on sheet prices. Custom of the trade, moreover, prescribes that sheet bar orders are irrevocable whereas sheet buyers, so long as they have not specified against orders, have little compunction about cancelling orders when the market takes a dip. Fourth-quarter demand for sheets is fair to the extent that mills can look forward with confidence to a normal amount of October activity, but there appears to be much room for improvement.

Pig Iron.—A fair volume of inquiry for foundry iron has developed, but the generally quiescent character of the situation remains unchanged. Stocks on furnace banks are being augmented rather than diminished, and the blowing out or banking of merchant furnaces has not yet ceased.

Aluminum.—The market is devoid of new developments, the price situation remaining unchanged. In Detroit odd lots of resale metal continue to change hands at prices which have little bearing on the situation as a whole, but which merely reflect individual sellers' anxiety to liquidate holdings or individual buyer's eagerness for small quantities to fill gaps between arrivals of contract metal.

Copper.—Lack of foreign demand continues to keep the market in the doldrums, domestic consumers showing little eagerness to take advantage of this opportunity for bargains.

Calendar

SHOWS

- Oct. 17-27—New York, Electrical and Industrial Exposition, showing electric trucks, cars, parts and accessories, Grand Central Palace.
- Nov. 4-10—New York, First Automobile Exposition of the Foreign Automotive Association, Hotel Astor.
- Nov. 11-17—New York, Annual Automobile Salon, Hotel Commodore.
- Nov. 12-17—Chicago, Manufacturers Auto Accessory Exhibit, First Infantry Armory, Robert M. Jones, manager.
- Jan. 5-12—New York, Annual Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Eighth Coast Artillery Armory.
- Jan. 26-Feb. 2—Chicago, Annual Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 26-Feb. 2—Chicago, Annual Automobile Salon, Hotel Drake.

FOREIGN SHOWS

- Sept. 28-Oct. 7—Berlin, Automobile Show.
- Oct. 4-14—Paris, Passenger Cars, Bicycles, Motorcycles and Accessories, Grand Palais.
- Oct. 15-20—London, Motorcycle Show, Olympia.
- Oct. 24-Nov. 2—Paris, Trucks, Agricultural Tractors, etc., Grand Palais.
- Nov. 1-15—Buenos Aires, Annual Automobile Exposition, under the direction of the Automovil Club Argentino.
- Nov. 2-10—London, Automobile Show, Olympia.
- Nov. 22-Dec. 1—London, Motor Transport Exhibition.
- Dec. 8-19—Brussels, Passenger Cars, Trucks, Airplanes and Motor Boats, Aviation Palace.
- Oct. 1-3—St. Louis, Pulitzer Cup Aeroplane Races, under the auspices of the St. Louis Air Board.
- Oct. 28—Barcelona, Spain, Grand Prix for vehicles of 1500 c.c.; Nov. 1, International

Grand Prix for cycle cars of 1100—Nov. 4, International Grand Prix for two liter.

CONVENTIONS

- Oct. 8-12—Pittsburgh, Convention of American Society for Steel Treating.
- Oct. 8-15—Atlantic City, Convention of Electric Railway Association.
- Oct. 24-26—Cleveland, Thirtieth Annual Convention of the National Association of Farm Equipment Manufacturers, Hotel Statler.
- Oct. 25-27—Lake Mohonk, N. Y., Mountain House, Semi-Annual Meeting of the American Gear Manufacturers Association.
- Nov. 12-17—Chicago, Annual Business Exhibit and Convention of the Automotive Equipment Association, Coliseum.
- Jan. 24-31—Chicago, Annual Convention and Show of the American Road Builders' Association, the former to be held in the Congress and the latter in the Coliseum.

May, 1924—Detroit, International Motor Transport Congress under the auspices of the National Automobile Chamber of Commerce.

S. A. E. MEETINGS

- Oct. 18—Metropolitan Section, Brakes, Henry M. Crane.
- Oct. 25-26—Production Meeting of the S. A. E.—Cleveland.
- Nov. 15—Metropolitan Section, Commercial Air Travel, C. W. Warner.
- Dec. 13—Metropolitan Section, Vehicles for Package Delivery.
- Jan. 22-25, 1924—Annual Meeting of the S. A. E.—Detroit.
- Feb. 14, 1924—Metropolitan Section, Vehicle Depreciation.
- March 13, 1924—Metropolitan Section, Replacement Parts and Accessories.
- April 17, 1924—Metropolitan Section, Fleet Maintenance, F. W. Winchester.
- May 15, 1924—Metropolitan Section, What Roads and Steels Do to Automobiles.

One Agency May Buy for U. S. Government

WASHINGTON, Sept. 17—Proposals by the Budget Bureau to ask Congress for authority to establish a consolidated purchasing agency for the Federal Government will be of interest to the sales managers of automotive manufacturing and accessory concerns. The suggestion has been made that the Government erect and maintain a central warehouse and a consolidated purchasing agency for Government supplies.

The inquiry conducted by a special committee showed that it is possible to obtain lower prices by bulk purchases than can be obtained under running contracts with the general supply committee. One of the experiments conducted covered the purchasing of tires and tubes by the Federal and the District of Columbia governments.

On a total purchase of \$82,000 worth of tires and tubes for a three months' period, and with only a relatively small part of the field service participating, the results show a total gross saving of \$23,223, or 26 per cent, on pneumatic casings, and \$3,460, or 33 per cent, on solid and cushion tires. On individual sizes of pneumatic casings savings ran as high as 35 per cent; on tubes, 44 per cent, and on solid and cushion tires, 35 per cent.

An important saving in the District government in its purchase of tires and tubes can be ascribed indirectly to the outcome of this new plan of purchase for the Federal Government. The District government delayed making awards on bids submitted under its running contract method pending the results of the experiment by the chief coordinator and the Bureau of Efficiency.

Immediately upon receipt of information that the new plan had brought good

results the District government advertised for bids in a similar manner. The resulting prices have saved the District government approximately \$1,648, or 21 per cent.

Advances Traffic Plan And Is Awarded \$1,000

NEW YORK, Sept. 19—The \$1,000 prize offered by the Keith, Moss and Proctor theaters for the best plan for the solution of New York's traffic problem has been awarded to Arthur S. Tuttle, chief engineer of the Board of Education. Lee J. Eastman, president of the Packard Motor Car Co. of New York, was a member of the committee of judges. Tuttle's plan included the following points: That in the vicinity of Forty-second Street north and south avenues should be one-way streets, regulated by the block system of traffic; that Riverside Drive should be extended southward to the Battery as an express highway on an elevated structure; that the streets should be widened by having arched sidewalks, with double-deck sidewalks on the second story, these extending over street crossings.

In making their decisions the judges held that the most feasible plans for relieving traffic were to arcade buildings on the street levels, put all trains and cars underground, use the street level for vehicular traffic and build viaducts for pedestrians.

BUYS PLANT FOR BODIES

NEWARK, N. J., Sept. 18—The Royal Motor Coach Co., Inc., of this city, has purchased the factory buildings and grounds of the Lincoln Body Co., St. George's Avenue, Rahway, N. J., where, following alterations of the building, bodies and chassis for motor buses will be built.

Pupils and Teachers Will Write on Safety

WASHINGTON, Sept. 18—A substantial part of the \$12,000 contributed by the National Automobile Chamber of Commerce to the Highway Education Board will be given away in prizes for the third annual safety campaign promoted by the latter organization.

Sixty-five hundred dollars will be devoted to prizes in this campaign, which is intended to train children in the habits of highway safety. Through the children it is hoped that the principles of traffic regulation and safety education will be impressed upon adults, both pedestrians and drivers alike.

The campaign will take the form of two contests, one among elementary school pupils and another among elementary school teachers. There will be approximately 500 State and national prizes given for the best essays and lessons written.

The subject of the essays which children are invited to write is "Highway Safety Habits I Should Learn." Essays, as was the case last year, are not to exceed 500 words in length. Those persons eligible to submit them are pupils of the fifth, sixth, seventh and eighth grades, who are not more than fourteen years of age. The contest closes Dec. 4, 1923.

Teachers are requested to submit safety lessons on the subject "Training Children in Habits of Safety on the Highways," confining them to from 1000 to 3000 words. All elementary school teachers in the eighth and lower grades are eligible.

Complete details of the contest will be furnished to those interested by the Highway Education Board, Willard Building, Washington, D. C.